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The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, JUNE 6 $6.00 a Year

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A NEW COOPER TYPE-80

NO design can remain unchanged in the oil and gas fields today and retain a position of leadership. Sooner or later some progressive operator finds something on it which can be made better. Then the Cooper-Bessemer research department gets into action and if the improvements stand the tests they are adopted.

This has been true of the Cooper Type-80. While hundreds of operators will still insist that it was as good a compressor engine as they could ever expect, a few asked for some small improvements.

The new Type-80 is the answer to these requests. While the general design has not been changed a number of improvements have been added which make it a still better engine all over. A new bulletin tells all about it and will be sent to those who request it.

THE COOPER-BESSEMER CORPORATION

Formerly

The C. & G. Cooper Company, Mount Vernon, Ohio — The Bessemer Gas Engine Company, Grove City, Pennsylvania

Branches in all principal oil and gas fields

Advertisers' Index on Page 41 Table of Contents on Page 42

Du Pont Petro Paint stands up in the petroleum field

Petro Paint was developed especially for the oil and gas industries. Highly resistant to sulphur fumes and extremes of weather.

BURNING sun and frigid nights; sulphur fumes; aqueous vapor; volatiles—nowhere are these destructive enemies of paint so prevalent as in the oil fields and refineries.

Paints designed for ordinary purposes soon blacken and deteriorate—become unsightly; crack and fail. Paint upkeep grows to costly proportions.

Developed especially for the petroleum industry, Petro Paint overcomes these common difficulties in plant maintenance. It is remarkably resistant to destructive agents. It preserves and beautifies plant structures for long periods of time, with a minimum of repainting. And it is equally adapted to use on wood and in systems applicable to metal, plaster, concrete or any other type of surface.

Du Pont's balanced formula solves the problem

Paints based on white lead darken rapidly in the presence of sulphur fumes. Lithopone used alone fails by excessive chalking and mildewing. Zinc oxide used alone causes cracking. Titanium oxide alone fails by excessive chalking. However, the proper combination of certain of these pigments makes it possible to overcome the weaknesses of each, and at the same time takes full advantage of their desirable characteristics.

After extensive experiment du Pont scientists decided on the pigment composition of Petro Paint: lithopone, zinc oxide and titanium oxide with the proper amount of inert pigment added to give greater durability. Field and laboratory tests determined the proportions to "bring" out the most desirable feature of each element.

A fundamental study of driers was made. A vehicle was developed which overcame many difficulties hitherto unsolved. Ease of brushing was attained. Petro Paint sets a completely new standard for effective colors, efficiency and economy.

7 reasons why Petro Paint will meet your requirements

Consider these characteristics of Petro Paint as applied to your own specific painting problems:

1. **Petro Paint is highly resistant to sulphur fumes and aqueous vapors.**
2. **It is adapted for systems designed for all types of surfaces.**
3. **On tanks it curtails evaporation. It has the remarkable quality of retaining its original brilliance and cleanliness for a long period of time without fading.**
4. **It has greater durability under any conditions.**
5. **It leaves a good surface for repainting.**
6. **It can be applied under adverse temperature conditions. It does not crawl on cold surfaces.**
7. **It hides better than other mixed paints—is very economical.**

Petro Paint gives you an opportunity to use color effectively wherever you wish.

Send for further information

Full details of the Petro Paint line have been compiled in our Technical Bulletin No. 4. At your request, a copy will be mailed to you immediately. Or, if your problem requires special study, we will be glad to send a du Pont technical representative to work with you.

DU PONT

E. I. DU PONT DE NEMOURS & CO., *Incorporated*

Petroleum Sales Department *OG-6*

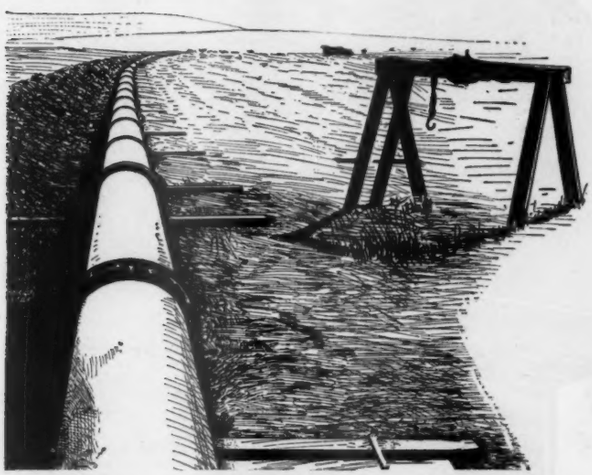
PARLIN, N. J.

EVERETT, MASS. **CHICAGO, ILL.** **SAN FRANCISCO, CAL.**

WALWORTH

STEELIRON DOUBLE DISC GATE VALVES

500 LBS. WORKING GAS PRESSURE



Along the Amarillo-Denver Gas Pipe Line. A Walworth Valve Installation.

Spur gear operated, with by-pass, these valves are especially designed for gas pipe line service carrying pressures up to 500 lbs. per square inch. They are furnished regularly in rising stem type with spur gear operation and four-inch by-pass. These valves are available also without the by-pass and without the gearing if so desired.

Two bronze wedges are used for spreading the discs. The stem is of rolled bronze and the seat rings and disc face rings are of hard bronze.

Body, bonnet, discs and yoke are of Walworth Steeliron, insuring strong and compact castings.

A sturdy, dependable valve for gas pipe line service. The unanimous choice of engineers on some of the greatest pipe line projects ever undertaken.

Made in sizes 14, 16, 18, 20 and 24 inches.

WALWORTH

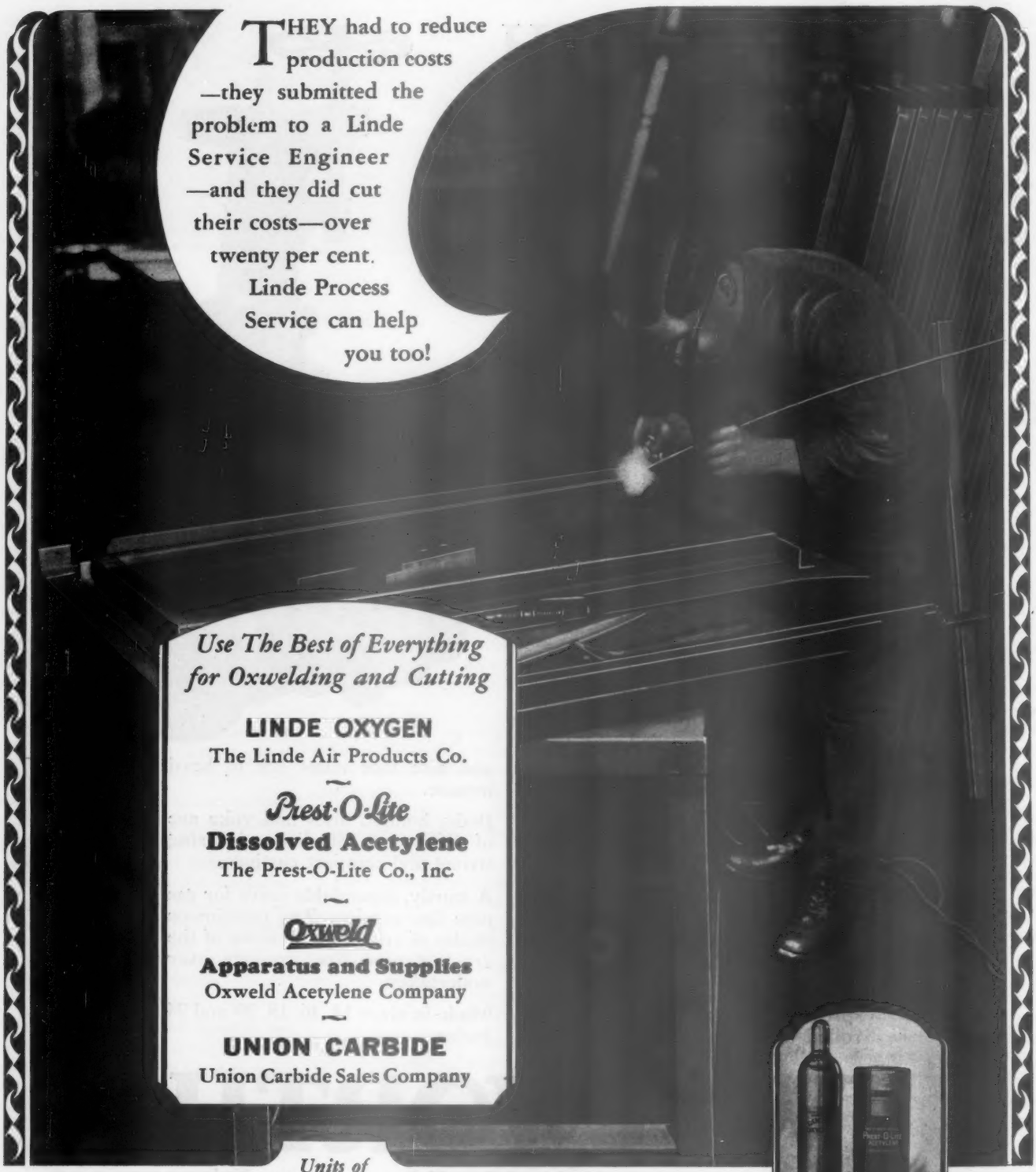
Walworth Company, General Sales Offices: 51 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

Distributors in Principal Cities of the World

Walworth Company, Limited, 620 Cathcart St., Montreal, P. Q.
Walworth International Co., New York, Foreign Representative

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

—and they did cut their costs!


THEY had to reduce production costs —they submitted the problem to a Linde Service Engineer —and they did cut their costs—over twenty per cent. Linde Process Service can help you too!
Use The Best of Everything for Oxwelding and Cutting
LINDE OXYGEN
The Linde Air Products Co.
Prest-O-Lite
Dissolved Acetylene
The Prest-O-Lite Co., Inc.
Oxweld
Apparatus and Supplies
Oxweld Acetylene Company
UNION CARBIDE
Union Carbide Sales Company

Units of

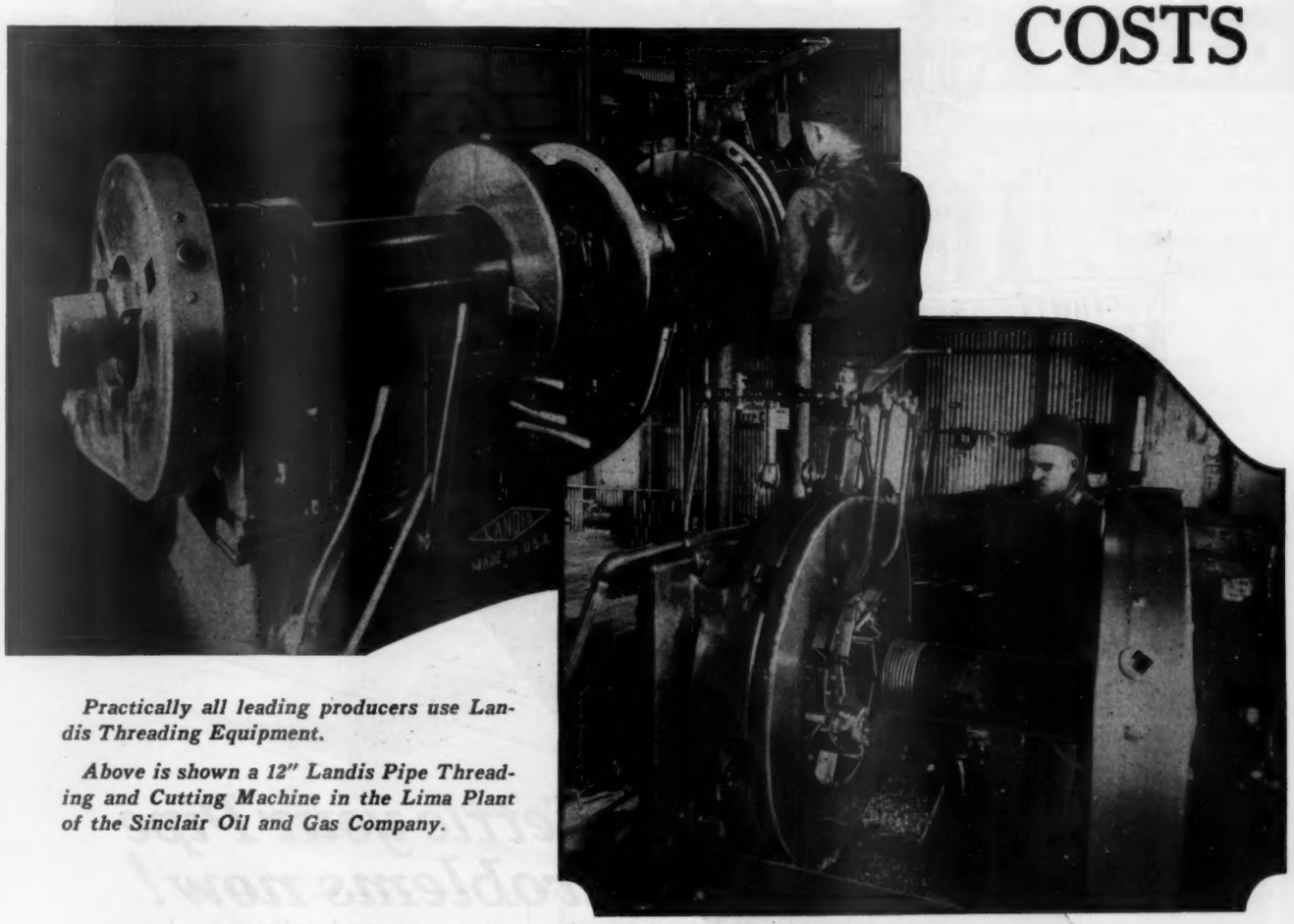
UNION CARBIDE AND CARBON CORPORATION

General Offices UCC *Sales Offices*

30 East 42nd Street, New York, N. Y. In principal cities of the country

64 Linde Plants—45 Prest-O-Lite Plants—154 Oxygen Warehouse Stocks—138 Acetylene Warehouse Stocks—38 Apparatus Warehouse Stocks —235 Carbide Warehouse Stocks

LANDIS GIVES ACCURACY WITH LOWER MAINTENANCE COSTS



Practically all leading producers use Landis Threading Equipment.

Above is shown a 12" Landis Pipe Threading and Cutting Machine in the Lima Plant of the Sinclair Oil and Gas Company.

Above all else, a pipe threading machine for oil country work should produce threads which are accurate for taper and thread form.

The cutting principle of the patented Landis Chaser—line contact—natural clearance—rake angle ground to suit the material—imparts a free-cutting action to be obtained with no other threading die.

Production Costs? Lower—certainly!

The Landis Pipe Threading and Cutting Machine is geared for higher threading speeds. It has a more flexible control and is more easily set up.

Then, too, the Landis chaser has a long life—ten times that of ordinary dies.

Catalogue No. 31 will be sent upon request.

LANDIS MACHINE COMPANY, Inc.

WAYNESBORO, PENNA., U. S. A.

REPRESENTED IN THE DOMESTIC OIL FIELDS BY: Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; D. S. Mair Machinery Co., Houston, Tex.; Woodward, Wight & Co., New Orleans, La.; Herberts Machinery & Supply Co., Los Angeles; Herberts Moore Machinery Co., San Francisco, Calif; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

Settle your Pipe Problems now!

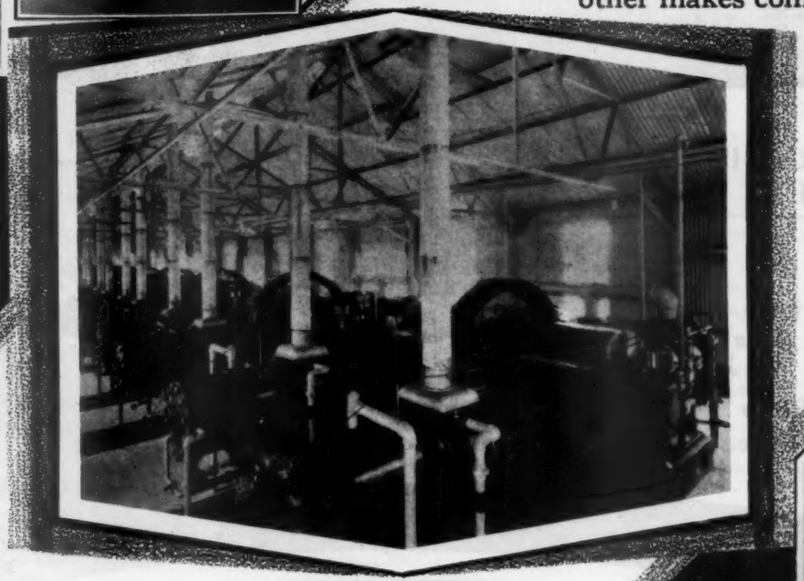
For ordinary replacements, extension of present equipment, or building an entirely new unit—refinery engineers can settle once for all time the question of the right pipe to use. No matter how varied the pipe requirements in the plant, there is a "NATIONAL" Pipe for the purpose. And you take no chance with quality when you use this material because the same quality is built into every type of "NATIONAL" Pipe, regardless of its size or purpose. Over half a century of manufacturing experience behind the product, backed by the judgment of America's leading refinery builders, justify your confidence in standardizing on one pipe for all refinery purposes. Available in all sizes, for any pressures, for any type of joint and for all kinds of bending and forming operations.

NATIONAL TUBE COMPANY, Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

NATIONAL PIPE

McCord LUBRICATORS

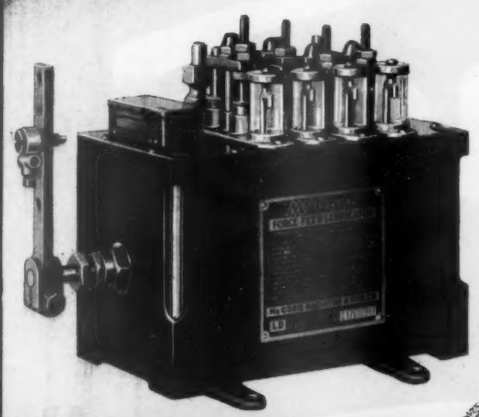
STANDARD OF THE OIL FIELD



There is no denying the best recommendation any product can offer is the approval of its users. More McCord force feed lubricators are in use in the oil fields, giving satisfactory service than all other makes combined.

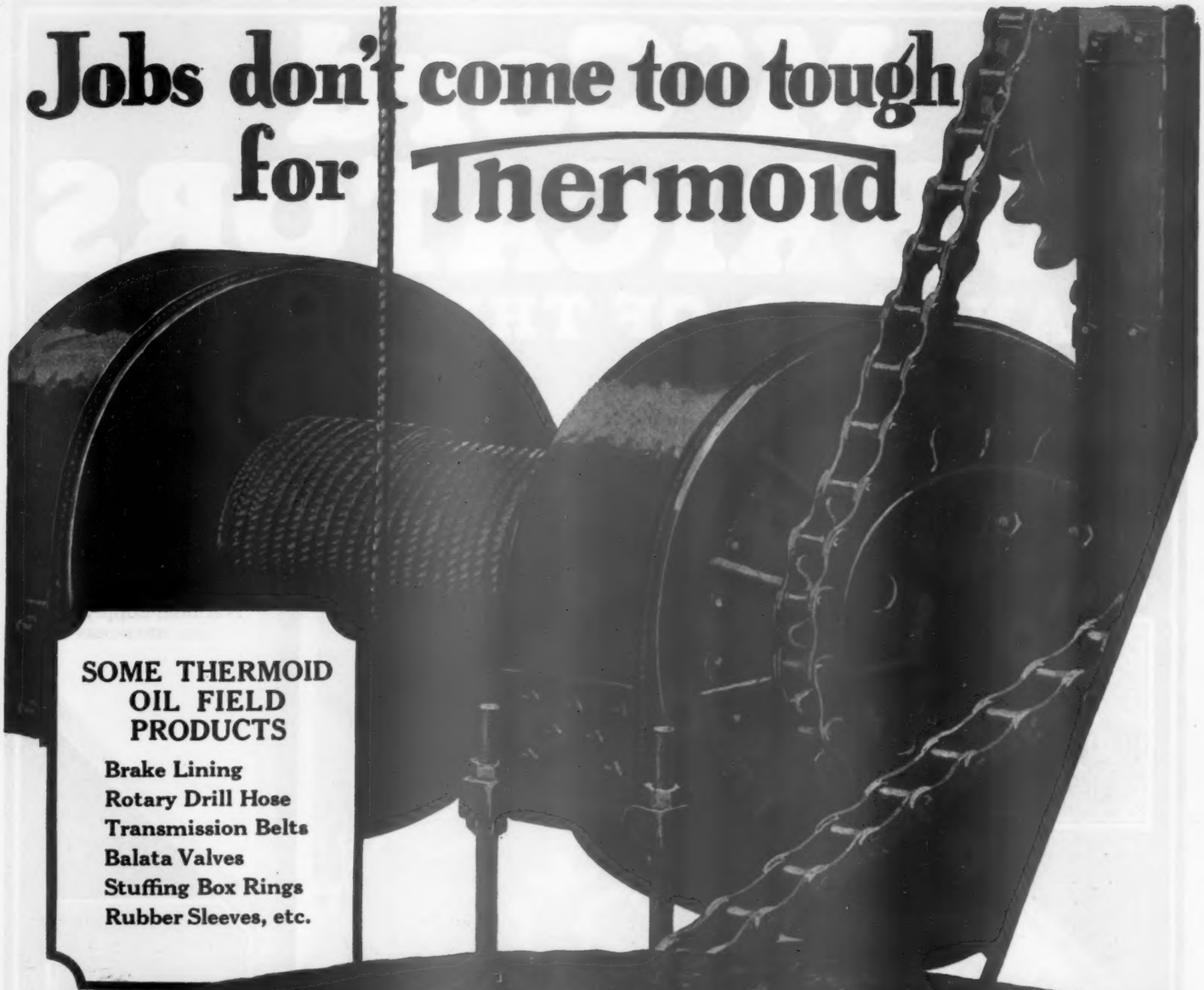
DISTRIBUTED BY
National Supply Co.
ALL BRANCHES

21—165 H.P. Units—
McCord Equipped



McCord Radiator & Mfg. Co.
LUBRICATOR DIVISION
Detroit, Mich.

Jobs don't come too tough for Thermoid



SOME THERMOID OIL FIELD PRODUCTS

Brake Lining
Rotary Drill Hose
Transmission Belts
Balata Valves
Stuffing Box Rings
Rubber Sleeves, etc.

Thermoid

BRAKE LINING

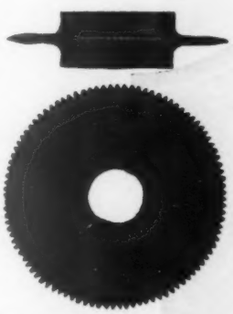
THERMOID RUBBER COMPANY - *Factories and Main Offices* - TRENTON, N. J.

The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete .....$9.60 net
West of Rocky Mountains $10.80

Nye Type Self-Locking Vises

No. 00 .....$2.82 net
No. 10 ..... 3.34 net
No. 20 ..... 5.00 net
No. 30 ..... 7.33 net



Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

Nye Three-Wheel Pipe Cutter Barnes Type

Equipped with Three Nye Knurled Cutter Wheels

No. 1 .....$ 2.48 net
No. 2 ..... 3.30 net
No. 3 ..... 5.50 net
No. 4 ..... 11.00 net
No. 5 ..... 16.50 net
No. 6 ..... 22.00 net

A LETTER FROM HARRY G. NYE

TO THE OIL MEN OF THE U. S. A.

Fellow Citizens:

Five million more automobiles will be manufactured this year, and I am wondering where we are going to put 'em. I wouldn't worry about the other 4,999,999 if I knew where a fellow was going to put even one.

When a man takes his car out now on a nice day he meets everything but his payments. Half the people in the world seem to be going the same place he is, and the other half where he came from.

It takes 35 minutes to pass a given hotdog stand. The world seems to be going to two funerals, and if you get out of one you meet the other, and sometimes a darned sight sooner than you expected.

But always up ahead of you in your own line is some patriot who says, "They shall not pass!" Money is no object to some men who buy a car, and time to a lot of others.

And, when you get where you're going, where are you going to go after you get there? You can't park in front of a fireplug, because other people have all the fireplugs already.

There is one thing certain: A man looking for a place to park certainly does see the city. If a man finds a parking place in less than 40 minutes they arrest him for speeding.

A visitor in Chicago got into a traffic lane, and it was three days before he got out. He ran out of gas, of course, but the taxicabs bumped him the rest of the way.

It is too bad that parking hasn't been made as easy as pipe threading and cutting. Nye Tools have made it so easy that an oil man has no troubles whatever except his car.

You never get into a jam with Nye Tools. No matter how much there is to do, or how soon, they work so fast that you do it easy, and do it on time—and that means at a profit.

Yours for speed,

HARRY G. NYE.

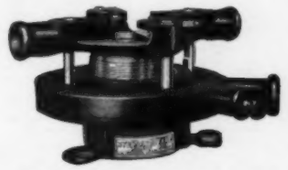
Copyright, 1929, by HARRY G. NYE
All Rights Reserved

Otherwise Known as
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Ave., Chicago, Ill.

Nye Drop Forged Pipe Cutter

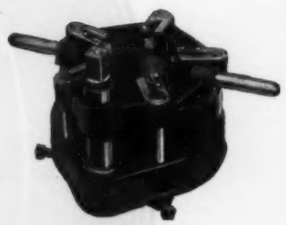
Equipped with Nye Knurled Cutter Wheels

No. 1-A Complete .....$2.75 net
No. 2-A Complete ..... 3.30 net
No. 3-A Complete ..... 5.50 net



The No. 1A is the same as the No. 1 except that it is equipped with a ratchet for work where space is restricted.

No. 1A Nye Receding Pipe Threader, complete .....$12.00 net
West of Rocky Mountains $13.50



Nye No. 2 (Toledo Type) Geared Threading Device Improved

Capacity 2½ in. to 4 in. inclusive.
Net price complete $50.00
West of Rocky Mountains 55.00
FREE TRIAL—ABSOLUTELY GUARANTEED

Nye (Toledo Type) Chasers Fit Nos. 1, 1A and 2 Nye (Toledo Type) Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1" to 1½" .....$ .75 per set net
No. 1, 2" ..... 1.25 per set net
No. 2, 2½" to 4" ..... 3.60 per set net

Nye Saunders Pattern Pipe Cutter

The Nye Saunders type pipe cutter is equipped with Nye knurled wheels. All parts are interchangeable.

No. 1 .....$ 2.00 net
No. 2 ..... 3.00 net
No. 3 ..... 7.33 net
No. 4 ..... 12.00 net
No. 5 ..... 18.67 net

WRIGHT MANUFACTURING CO. BRIDGEPORT, CONN. U.S.A.
WRIGHT
MODEL BB
HOIST
The
WRIGHT
HIGH SPEED
Hoist is Supreme
It Stands out as the Successful Answer to every Hoist Requirement
BACKED BY 21 PLUS POINTS OF HOIST SUPERIORITY
Ask Your Jobber
WRIGHT MFG. COMPANY
BRIDGEPORT, CONN.
An Associate Company of the American Chain Company, Inc.
ACCO
AN ASSOCIATE COMPANY OF AMERICAN CHAIN COMPANY Inc.
in business for Your Safety

90 A

Out of the reach of corrosion, now!

ARMORED,

underground

The photographs show the application of Carey Asbestos Pipe Line Felt on the Hope Engineering Company's lines through the marshes of Louisiana. An armor of asbestos, processed with mineral oils, impervious to every soil condition. Bonded on, hot or cold, it cannot shatter off. Give your pipe lines this economical protection; bury them... and forget them! They're safe.

Special Industries Department
THE PHILIP CAREY CO., *Lockland,* Cincinnati, O.
R. B. HALL, Special Mid-Continent Representative
417 Magnolia Bldg.
Dallas, Texas

Carey ASBESTOS PIPE LINE FELT

For Six

SMITH*WELDED*

A. O. SMITH CORPORATION

Oil & Gas Field Products Division

Major Lines

At one time, during the first half of the year A. O. Smith was supplying pipe for six major lines simultaneously. Each of the lines was more than 200 miles in length.

LINE PIPE

General Offices: Milwaukee, Wis.

District Offices at: New York, Pittsburgh, Tulsa, Houston, Los Angeles

Another Way to Avoid a

Production Tie-Up

There are so many hostile elements conspiring to choke off production that it is well nigh impossible to guard against them all. However, there is little reason to put up with troublesome valves. This source of delay and expense is removed and forgotten when Darling Gate Valves are installed.

They have everything in their favor—strength, simplicity of construction, ease of operation and long-wearing parts. They have ample clearance through the seats against injury by tools, pipe, etc., passing through the valve.

Further details on request.

Darval Semi-Steel Drilling Gate Valve Made in all sizes for all pressures.

Darling Valve & Mfg. Company

Williamsport, Pa.

New York Chicago Oklahoma City Houston

Mid-Continent Distributors:

Frick-Reid Supply Corp. Atlas Supply Co.
International Supply Co. Petroleum Supply Co.
Happy Belting Company

California Distributor:

Petroleum Equipment Company, Los Angeles

DARLING

GATE VALVES

Darling Forged Steel Drilling Gate Valve for extra high pressures and other hazardous conditions.

Griscom-Russell

Heat Transfer Apparatus

A Type for every service

GRISCOM-RUSSELL Shell and Tube Heat Transfer Equipment is built in both vertical and horizontal types, for high and low temperatures and pressures, and for all fluids and heat transfer processes.

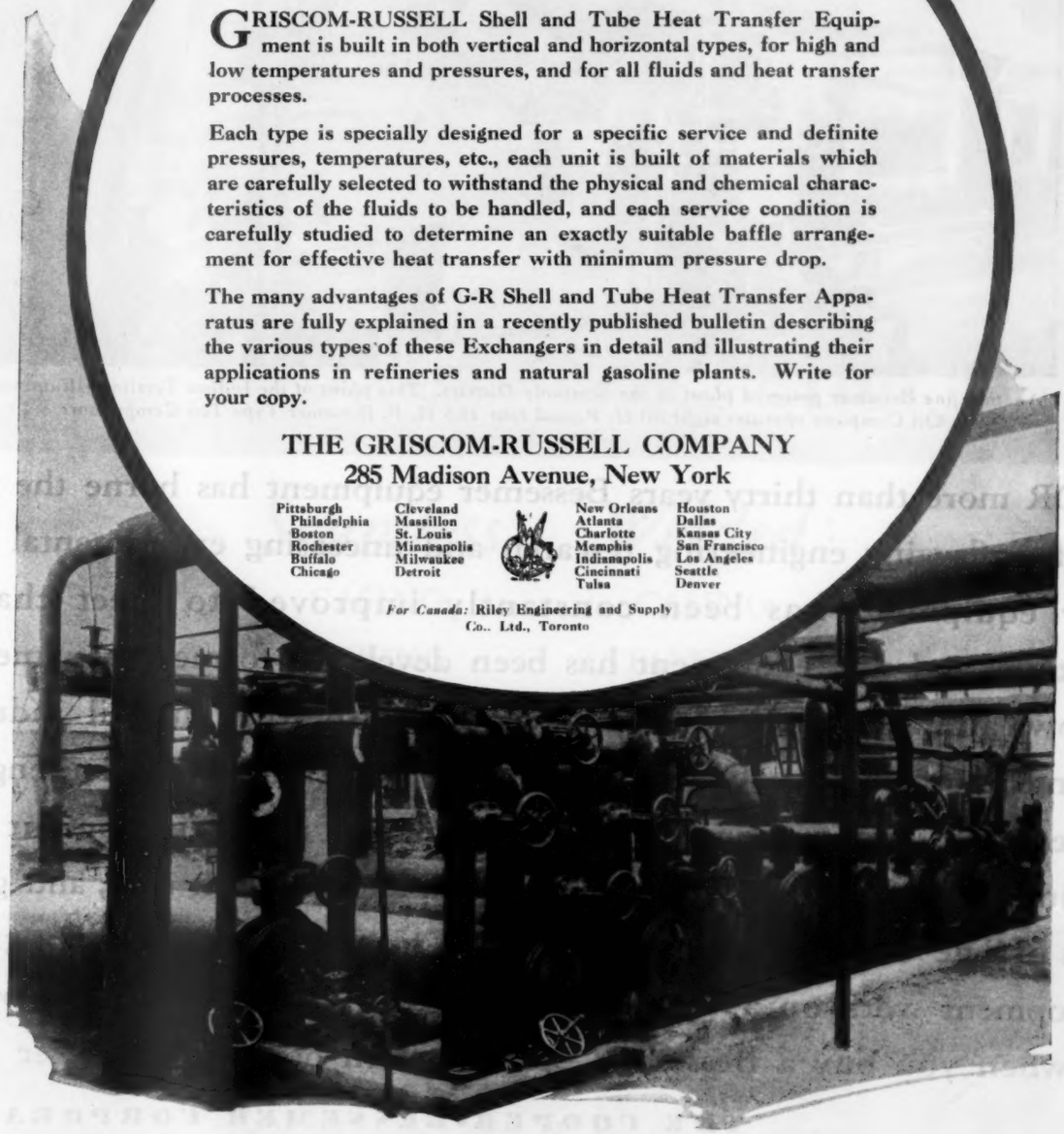
Each type is specially designed for a specific service and definite pressures, temperatures, etc., each unit is built of materials which are carefully selected to withstand the physical and chemical characteristics of the fluids to be handled, and each service condition is carefully studied to determine an exactly suitable baffle arrangement for effective heat transfer with minimum pressure drop.

The many advantages of G-R Shell and Tube Heat Transfer Apparatus are fully explained in a recently published bulletin describing the various types of these Exchangers in detail and illustrating their applications in refineries and natural gasoline plants. Write for your copy.

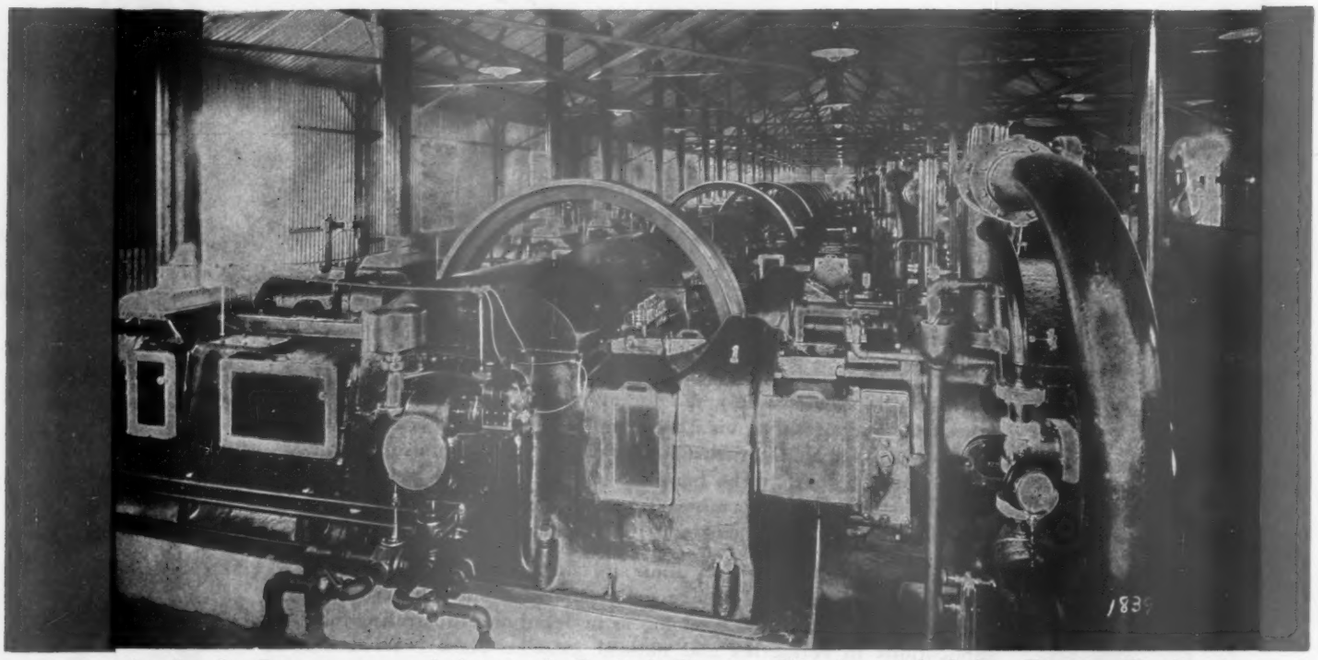
THE GRISCOM-RUSSELL COMPANY
285 Madison Avenue, New York

Pittsburgh, Philadelphia, Boston, Rochester, Buffalo, Chicago, Cleveland, Massillon, St. Louis, Minneapolis, Milwaukee, Detroit, New Orleans, Atlanta, Charlotte, Memphis, Indianapolis, Cincinnati, Tulsa, Houston, Dallas, Kansas City, San Francisco, Los Angeles, Seattle, Denver

For Canada: Riley Engineering and Supply Co., Ltd., Toronto



PROGRESS..
a reflection of
INTEGRITY



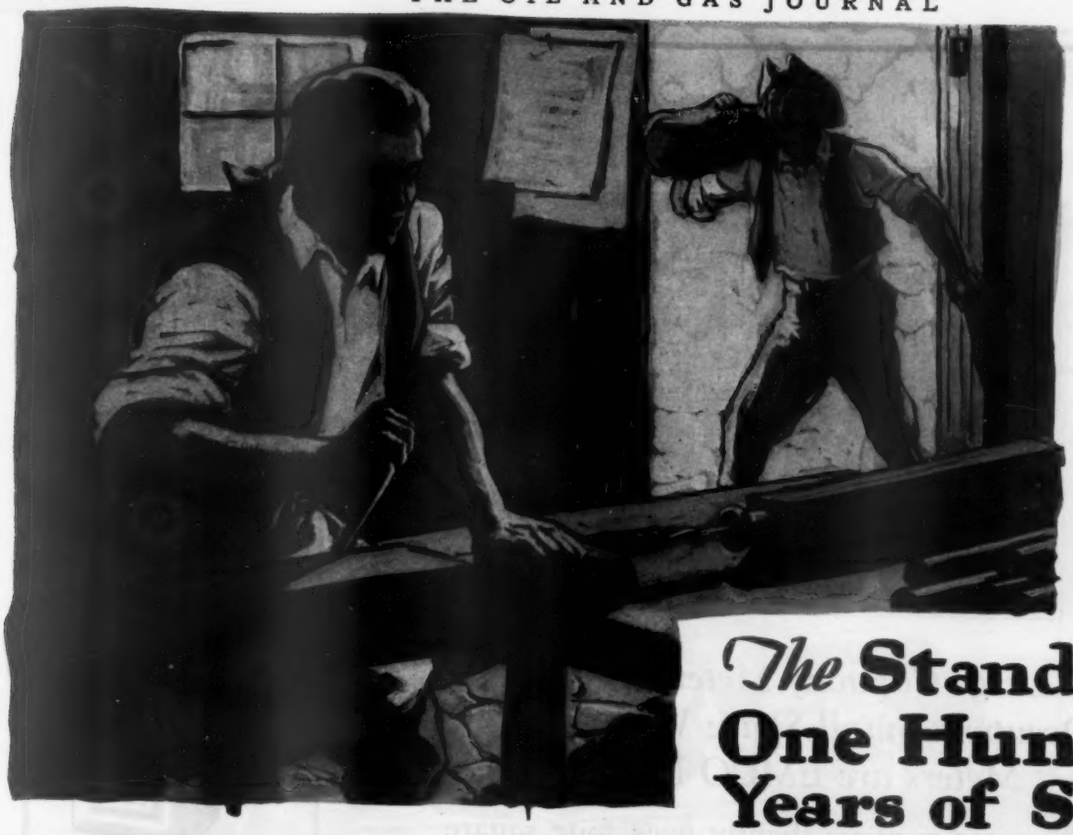
Another fine Bessemer powered plant in the Seminole District. This plant of the Indian Territory Illuminating Oil Company operates eight 80 H. P. and four 165 H. P. Bessemer Type Ten Compressors

FOR more than thirty years Bessemer equipment has borne the stamp of unflagging engineering research and unceasing experimental work. Older equipment has been constantly improved to meet changing conditions and new equipment has been developed to meet new methods. ¶ Now, after three decades of "keeping faith with the oil industry", Bessemer equipment will bear the mark of even more extensive engineering research, and more intensive experimental and development work. The increased facilities, larger experimental and research staff, and greater assets of The Cooper-Bessemer Corporation assure the same progressive development work on a vastly broader scale. ¶ You will still "buy the best when you buy a Bessemer"—only it will be an even better "best".

THE COOPER-BESSEMER CORPORATION

Formerly THE C & G COOPER CO., Mt. Vernon, O. · BESSEMER ENGINE CO., Grove City, Pa.

BESSEMER



The Standard of One Hundred Years of Service

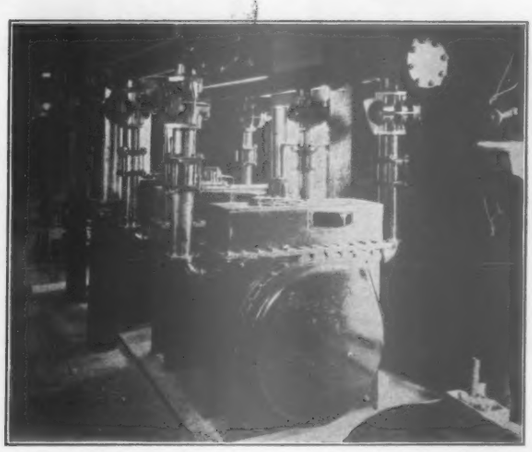
STANDARD ETNA

Seamless	*Welded*
CASING	CASING
TUBING	STANDARD PIPE
DRILL PIPE *(Regular and Heat Treated)*	LARGE O. D. PIPE
LINE PIPE	LINE PIPE
STILL TUBES	DRIVE PIPE
Sizes 2 inch to 13⅜ inch O. D.	DRILL PIPE
	Sizes ⅛ inch to 24 inch O. D.

Sales Offices:
Chicago, Ill.
New York, N. Y.
St. Louis, Mo.
Pittsburgh, Penna.
Tulsa, Okla.
Los Angeles, Calif.

Spang Chalfant & Co., Inc.
GENERAL OFFICES, CLARK BLDG.
Pittsburgh, Pa.

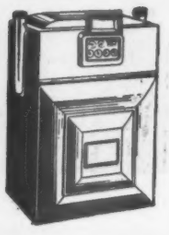
Mills:
Etna, Penna.
Sharpsburg, Penna.
Ambridge, Penna.

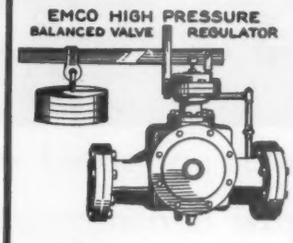


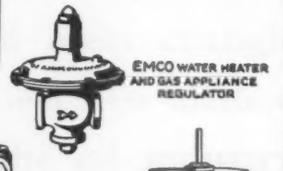
Three Large Capacity Meters Occupy a Small Space When the Meters are EMCO Number Fives

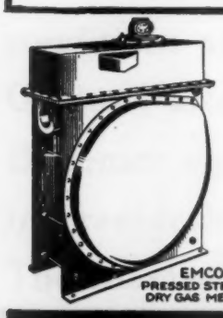
THIS meter requires slightly over four square feet of floor space. The pressed steel construction makes it rigid and is protection against hard jolts or knocks. The EMCO Number Five has a capacity of 10,000 cu. ft. per hour with a pressure drop of less than two inches.

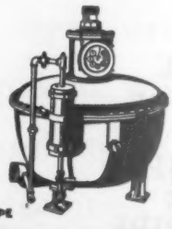
EMCO, *wherever you go.* This installation is in Iowa.

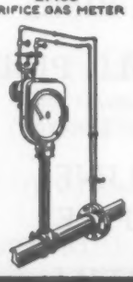


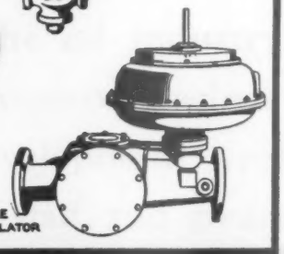










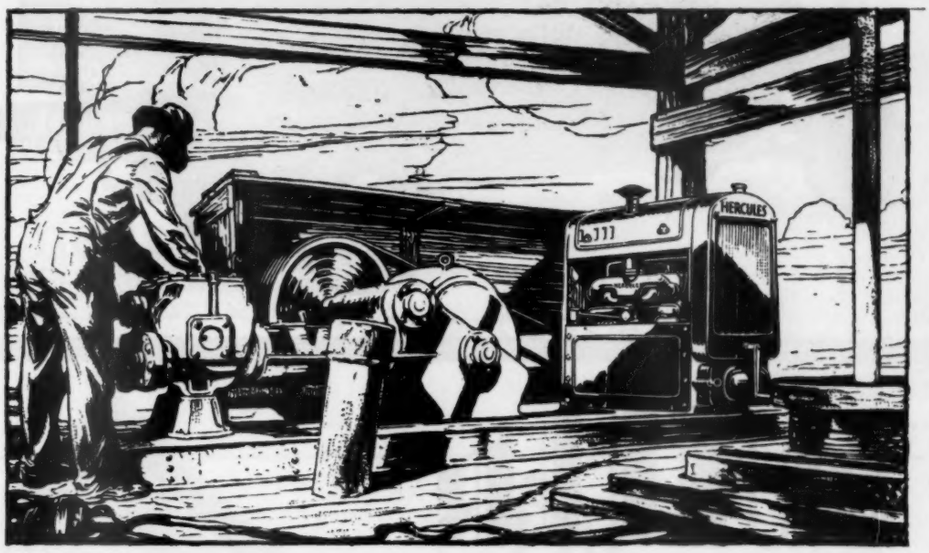


PITTSBURGH EQUITABLE METER COMPANY

MAIN OFFICE AND WORKS PITTSBURGH, PA.

NEW YORK CHICAGO COLUMBIA, S.C. LOS ANGELES DALLAS
TULSA SEATTLE KANSAS CITY SALT LAKE CITY

Hercules Powered Slush Pumps Aid the Rotary Driller

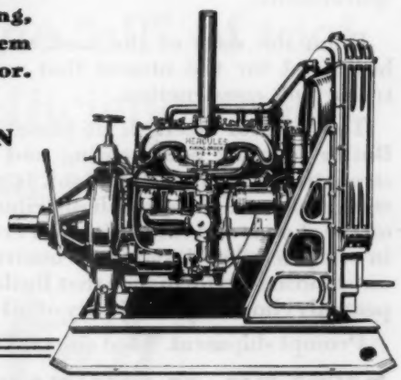


TO handle mud economically day after day, a Hercules powered Gardner Slush Pump is now being used on a portable rotary at Hempstead, Texas—another successful application of Hercules power to oil producing equipment.

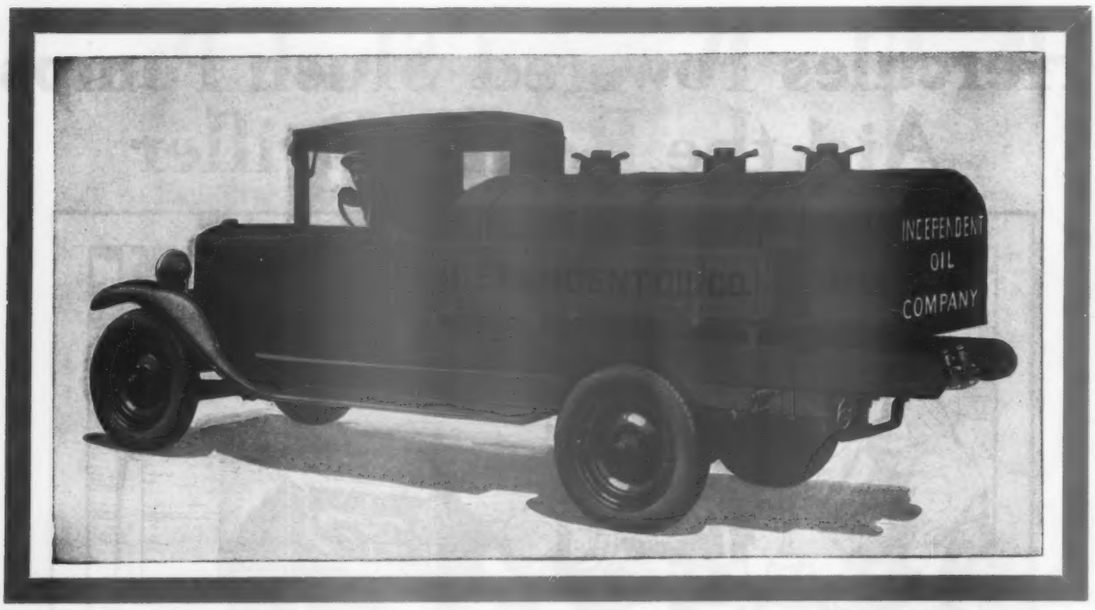
Operating at a pressure of 250 pounds the pump demands the brute force and stamina that are characteristic of Hercules. The inherent ability of Hercules Engines to provide long, reliable, heavy-duty service has made them indispensable to many an oil field operator.

HERCULES MOTORS CORPORATION
CANTON, OHIO, U.S.A.
West Coast Branch: Los Angeles, Cal.

THE CONTINENTAL SUPPLY COMPANY
ST. LOUIS, MISSOURI
Engine and Parts Distributor in the Mid-Continent Field



HERCULES ENGINES



BUTLER
TRUCK TANKS

This is one of the pictures displayed in a new Butler Truck Tank Bulletin which features the latest developments in truck tanks for trucks in the popular price range.

With your copy we will send complete price information on the tanks, any size, which you are needing or will be needing. Write today about tomorrow's requirements.

From the days of the tank wagon, the name Butler has stood for the utmost that was and is practical in truck tank construction.

The natural strength of plate steel is multiplied by Butler forming and welding and attains its maximum strength per pound. The tank is cushioned on a sturdy steel understructure which distributes the load uniformly on the chassis and carries it low. Performance is inwrought in every detail of design and construction. It is because of outstanding performance that Butler Truck Tanks are repeatedly chosen by a majority of oil marketing companies.

Prompt shipment. What size tanks are you needing next?

Butler Products

- Ready Made Buildings
- Bolted and Welded Oil Field Tanks
- Truck Tanks
- Welded Storage Tanks (above and underground)
- Visible Measuring Pumps
- Barrels, Buckets, Cans, Funnels
- Pipe for conduit, well casing and other purposes

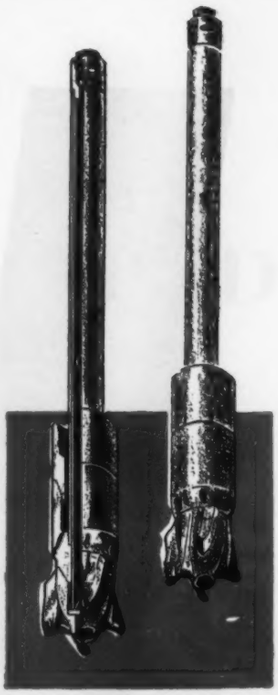
BUTLER MANUFACTURING CO.
KANSAS CITY, MISSOURI MINNEAPOLIS, MINNESOTA

BUTLER

Man—

Without tools he is nothing. With tools he is all.—

Thomas Carlyle



Perfection Core Barrel

A.P.I. Tool Joint

A.P.I. Fish Tail Bit

A.P.I. Gumbo Bit

The Oil Man—

with BREWSTER (AP) Products knows the "all" of tool efficiency and satisfaction

The Brewster COMPANY~INC.
SUCCESSORS TO OIL CITY IRON WORKS INC.
Shreveport, Louisiana

Distributed by: Continental Supply Co., *All stores*—Wilson Supply Co., *Houston and Beaumont, Tex.*—Hercules Supply Co., *Dallas, Tex.*—T. T. Word Supply Co., *Lake Charles, La.*—Murray-Brooks Hdw. Co., *Lake Charles and Hackberry, La.*—*Exporters:* Continental Well Supply Co., 74 Trinity Place, New York City, N. Y.

Quality that cannot be surpassed

Another manufacturer might build a mill as fine and as well equipped as the mill in which Bethlehem Steel Pipe is manufactured. He might place in charge of it men as capable and experienced as the men who operate the Bethlehem mill. He might make his pipe as conscientiously, test it as critically, as Bethlehem Steel Pipe is made and tested. He might even use steel comparable in quality to the steel that goes into the making of Bethlehem Pipe. And even then it is extremely unlikely that his product would be as good as Bethlehem Pipe.

Every product reflects its background. Bethlehem Steel Pipe is the product of an organization that has been making quality steel and steel products for well over half a century. To that background of long experience is due to a very appreciable extent the fine quality of Bethlehem Pipe—its uniformity, its softness and ductility, the ease with which it is cut aud threaded, the sharp, clean threads.

The high quality of Bethlehem Pipe cannot be surpassed. What jobbers and users think of Bethlehem Pipe is indicated by the large and steadily increasing shipments that are daily leaving the Bethlehem Pipe Mill.

BETHLEHEM STEEL COMPANY

General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Detroit, Cincinnati, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, Portland, and Honolulu.

Bethlehem Steel Export Corporation, 25 Broadway, New York City
Sole Exporter of our Commercial Products

BETHLEHEM STEEL PIPE

The most suitable steel for the purpose that it is possible to produce is used in making Bethlehem Steel Pipe. The name "BETHLEHEM" is marked at intervals on every length — assurance that Bethlehem Pipe embodies the same high quality found in other Bethlehem Products.

"WICO EQUIPPED" *means* Perfect Ignition

Sounds obvious to many of you oil men, but in a growing industry there are always newcomers. Just as a reminder we repeat what most of you know—WICO magnetos give the utmost reliability under the hardest operating conditions.

Oil field service presents unusual problems. Engines are exposed to moisture and dust—repairs and maintenance work have to be eliminated as far as possible—and the engines *must* be on the job. The latest WICO models are oil proof, moisture proof and dust proof. They are self-lubricating. They are designed especially to meet your problems.

A trained organization of service representatives covers the oil territory. These men are at your call when needed.

WICO dependability and WICO service account for the large number of engine builders who supply WICO magnetos as their standard ignition equipment.

FACTORY BRANCH
121 West 8th Street, Tulsa, Okla.

WICO MAGNETOS

WICO ELECTRIC COMPANY
SPRINGFIELD, - - - MASS.

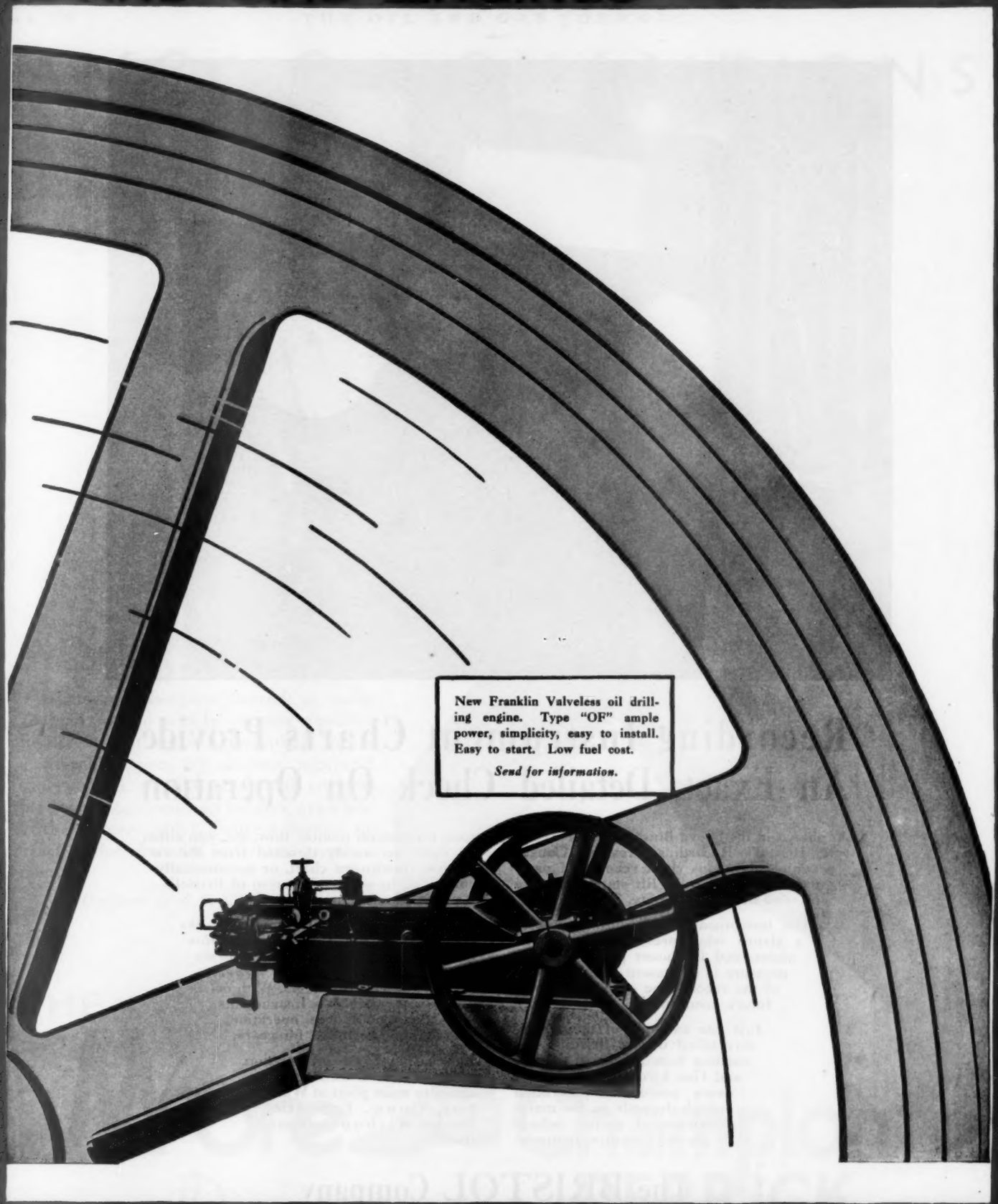
"Approximately 90% of Franklin's sales have come through repeat orders from satisfied users or from drillers who have watched these dependable, economical engines on the job."

High drilling cost is a good excuse to change your power plant. Low cost of operation is a good reason for changing to the Franklin.

Franklin Valveless Engine Co.

Franklin, Pa.

s Oil and Gas Engines



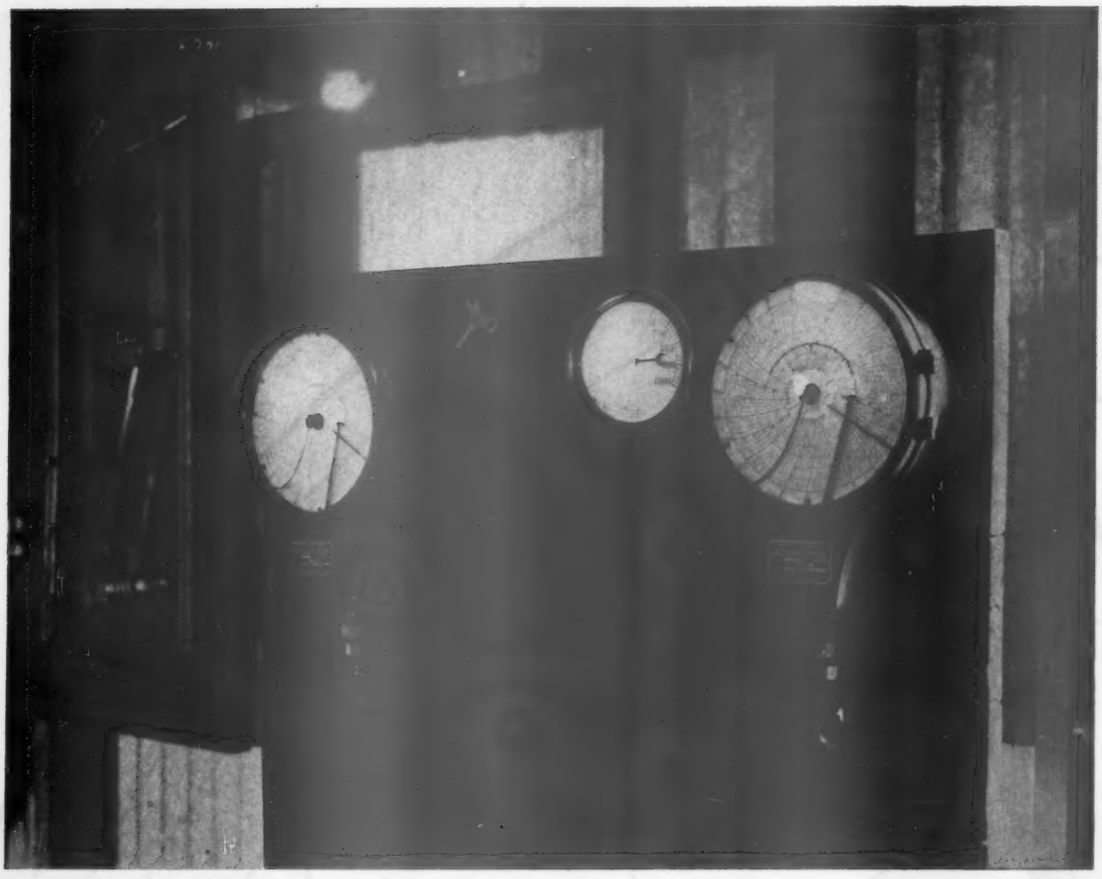
New Franklin Valveless oil drilling engine. Type "OF" ample power, simplicity, easy to install. Easy to start. Low fuel cost.

Send for information.

bu ed By

PLY COMPANY

in All Oil Fields



Recording Instrument Charts Provide An Exact, Detailed Check On Operation

As shown in the above illustration for example, Bristol's Recording Pressure Gauges provide continuous chart records of pressure conditions in air lift station at large oil well in Crane County, Texas.

The instrument charts show almost at a glance what pressures have been maintained for hours past; what the pressure is at present, and the trend of the record line clearly indicates future conditions.

Just one example of the greatly diversified use of Bristol's Recording Instruments in the Oil and Gas Industry. Almost every conceivable operation which depends on the maintenance of certain schedules of pressure, temperature, mechanical motion, flow, etc., can either be more accurately directed from the recording instrument chart, or automatically controlled by some adaptation of Bristol's Control Equipment.

And what is especially important — *the simple design and rugged construction of all types of Bristol's Instruments eliminates the necessity for frequent repairs and readjustments.* With ordinary care Bristol's Instruments will give trouble-free operation, and continue accurate, for years.

For complete information, write nearest branch office or direct to main plant at Waterbury, Conn. Engineering Service without obligation.

The BRISTOL Company

Waterbury Connecticut

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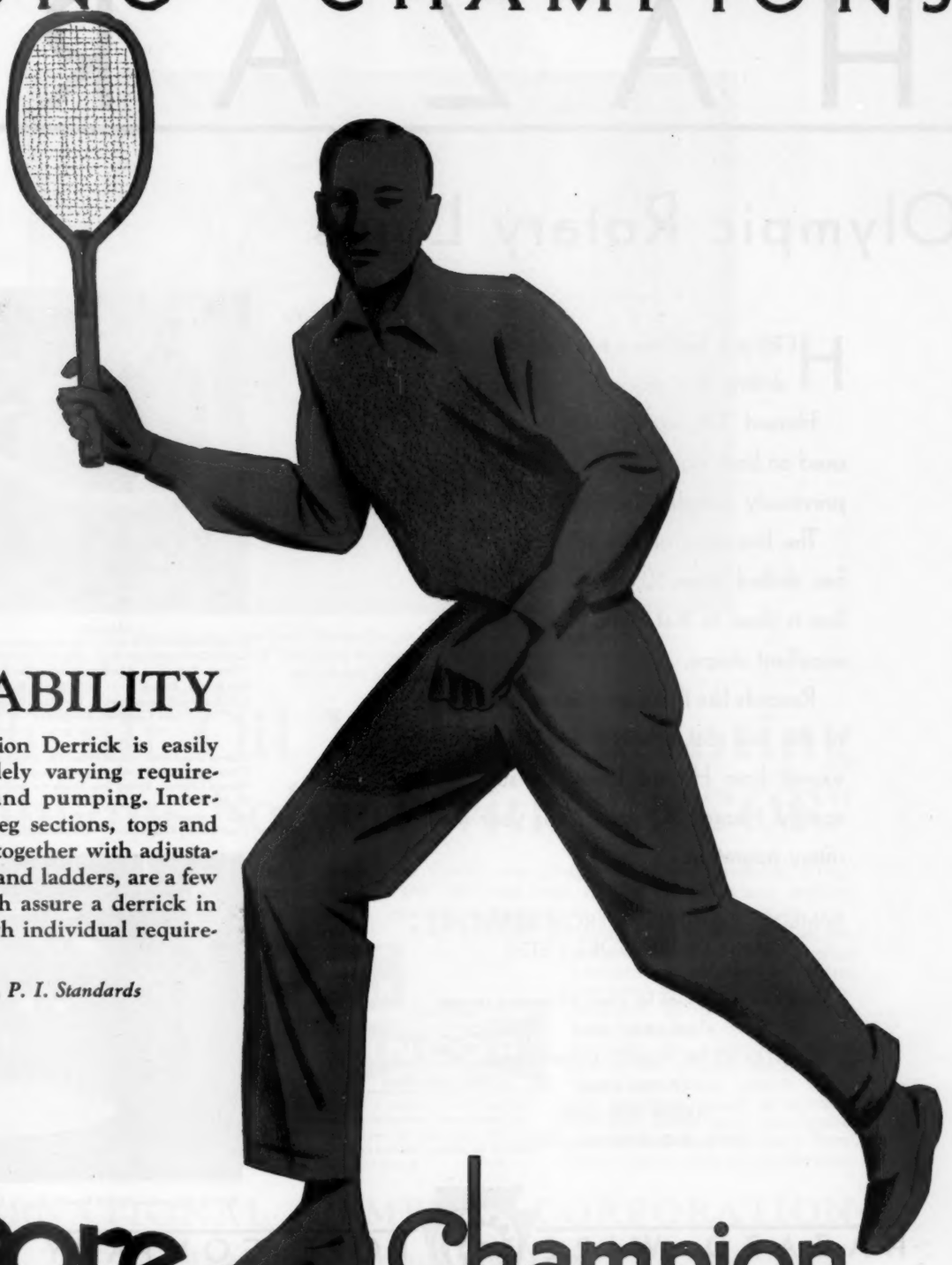
Boston New York Philadelphia Pittsburgh
Detroit Birmingham Chicago
Denver St. Louis Akron

AMONG CHAMPIONS



ADAPTABILITY

The Moore Champion Derrick is easily adapted to the widely varying requirements of drilling and pumping. Interchangeable fronts, leg sections, tops and other derrick parts, together with adjustable safety platforms and ladders, are a few of the features which assure a derrick in exact conformity with individual requirements.

Conforms to A. P. I. Standards

THE Moore Champion DERRICK

LEE C. MOORE AND COMPANY, INC.

PITTSBURGH · TULSA

ESTABLISHED 1907

New York Offices: Oilfield Equipment Company, 30 Church St., New York, N. Y.

DALLAS TEXAS, HOUSTON, TEXAS WICHITA, KANSAS CASPER, WYOMING

PARKERSBURG, WEST VIRGINIA SHREVEPORT, LOUISIANA

Stocks in All Principal Fields

HAZARD

Olympic Rotary Lines

HERE are two more examples of rotary drilling line efficiency and economy.

Hazard "Olympic" rotary line is being used on both rigs illustrated. Each line has previously completed another well.

The line used on Mead Bros., Inc., rig has drilled over 10,000 feet. The other line is close to that mark. Both lines are in excellent shape.

Records like these are the best evidence of the low cost, efficient service you can expect from Hazard Lines. Be sure you specify Hazard "Olympic" for your next rotary operation.

IMMEDIATE SHIPMENT FROM BRANCHES AND DISTRIBUTORS LISTED

There's a Hazard Line for every oil country service

DRILLING LINES
FLEX-SET PRE-FORMED ROTARY LINES
CASING LINES
SUCKER ROD LINES
SAND AND MANDREL LINES

(Above)
Dailey Markham Drilling Co., rig on Harjoshie No. 4, Gypsy Oil Co., Mission Pool, using 1" x 1250' Hazard Olympic Rotary line. Also the second well for this line.

Earl Bridges, Driller — M. L. Beaver, Roughneck
J. G. Copeland, Roughneck — Tom Riley, Roughneck
Jack Campbell, Roughneck

(Below)
One of Mead Bros., rigs on J Neal No. 4, Minnahoma Oil & Gas Co., in the Mission pool, using a 1" x 1250' Hazard Olympic Rotary line. This is the second well for this line.

Jean Lambert, Driller — J. E. Jones, Roughneck
Fred Velvin, Roughneck — C. A. Sneed, Roughneck

Both lines supplied by The Bovaird Supply Co.

HAZARD WIRE ROPE COMPANY
WILKES-BARRE PENNSYLVANIA

1625 South Troost Ave., TULSA, OKLA.

New York Pittsburgh Chicago Denver Los Angeles San Francisco Birmingham

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UNITED OIL WELL & SUPPLY CO.
Los Angeles, Cal.

View of the platform of the Lake Charles, La., well of the Shell Petroleum Corporation, where "INCOR" was used to close a bad cavity encountered at a depth of 2,879 feet.

Difficult Oil Well Cementing Problems Solved with "INCOR"

WHEN a flow of water or a bad cavity holds up drilling operations, practical oil men now use "INCOR" Brand Perfected High-Early-Strength *Portland* Cement. Because "INCOR" is a perfected high-early-strength *Portland* cement, and contains no admixtures, it solves the toughest problems. A recent cementing job in a Lake Charles, La., well of the Shell Petroleum Corporation is a case in point:

A large cavity was encountered in the wall of this well at a depth of 2,879 feet. Operations could not continue until the cavity was closed. Ordinary methods failed. "INCOR" was used, the cavity closed and drilling operations resumed in 60 hours.

Use "INCOR" for difficult oil well cementing, for bottom hole work, for plugging non-producing holes, for filling crevices, and for quick construction of derrick corners, foundation beds, etc. "INCOR" contains no admixtures — requires no special methods of handling—mixes readily without lumping—and is actually quicker, easier, and less expensive to use than ordinary Portland cement with an accelerator.

INTERNATIONAL SYSTEM
LONE STAR CEMENT
PERFECTED HIGH-EARLY-STRENGTH
"INCOR"
REG. U.S. PAT. OFF.
PORTLAND CEMENT

Outstanding quality and a policy of fair business dealing have earned nation-wide recognition for LONE STAR Cement. Now, to meet the need for dependable 24-hour concrete, the makers of LONE STAR also offer "INCOR" Brand

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342 Madison Avenue, New York

One of the world's largest cement producers—13 mills... total annual capacity 20,000,000 barrels

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LONE STAR CEMENT CO. LOUISIANA, New Orleans, Louisiana
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LONE STAR CEMENT COMPANY TEXAS, Dallas and Houston, Texas
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Drilling to 9000 feet

10 times *deeper* than the height of the Woolworth Tower

Bettis equipped of course

The deepest hole in the World is confidently expected to be reached in the drilling of Neasa No. 11 at Signal Hill, Calif. The capable crews are drilling a 7⅝" hole, using 3-inch drill pipe at 8223 feet and going strong. Bettis Protectors are a big help—reducing strain, help keeping the hole straight, reducing wear and tear on equipment and speeding up the drilling. The Drillers are taking no chances so they are using Bettis Rubbers. Almost every deep well drilled during the past year or more was Bettis-equipped. And remember—no seams, no hinges, no metal added to hole. Fully patented.

"Best bet yet!"

Patterson-Ballagh Corp.
Insurance Exchange Building
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Carried in stock at Los Angeles, Santa Fe Springs, Ventura, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Texas; New York City.

Fully Patented

Bettis Protectors

The Original and Genuine anti-friction Rubbers

THE ROMANCE OF OIL

(*Number Four of a Series*)

The Supply Store

Back on the shelf of a warehouse, among a thousand items lies a small fishing tool no larger than a man's hand. It has lain there more than six months.

Out on the lease a driller leans carefully on a brake lever in an endeavor to loosen a stuck stem.

If the driller leans just right, the fishing tool stays in its place on the shelf. If he leans too heavily, the fishing tool becomes of major importance.

Meeting any emergency is the responsibility of the driller. Back of the driller is the supply store. For the supply store to go one mile with the man on the lease is all in the work of the day. Going with him twain is the common occurrence.

HERCULES SUPPLY COMPANY

J·T·McCARTHY JR

EVERYTHING FOR OIL WELLS

The Hercules Supply Store has good equipment and necessary supplies to meet any emergency of the driller. Helping the man in the field or the man in the office to meet his needs quickly and satisfactorily is the Hercules Supply Company conception of service. Oil men are urged to use our stores regularly.

American Wire Lines . Lucey Rotary Products . Etna Tubular Products . Standard Seamless Tubular Goods . Guiberson Tubing Catchers and Swabs . Hughes Tool Co. Products . Baker Casing Shoe Products . Bettis Protectors . Walworth and Crane Valves. Hundreds of other lines and items in stock in every Hercules Store.

Stores: Merkel Pyote {Wink} General Offices, FORT WORTH *Borger Vernon {Grayback Crossing}*

Pillars of Dependability!

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Sucker Rods, Pull Rods, Working Barrels, etc.

BEAUMONT IRON WORKS COMPANY
Dreadnaught Rotary Drilling and Pumping Equipment.

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Oil Country Boilers and Tanks.

FRICK-REID SERVICE RUBBER BELTING
Our Own Specifications.

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Tubular Goods, Seamless and Lapwelded.

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"Sure-Grip" Line of Pumping Equipment.

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"Camel Hair" and Stitched Canvas Belting.

WALWORTH COMPANY
Fittings and Valves for all Branches of the Oil Industry.

WHITLOCK CORDAGE COMPANY
Manila Cordage, including Drilling Cables, Bull Ropes, Cat Lines, etc.

FRICK-REID STORES, each well managed and well located, covering the Oil Fields from the Rocky Mountains to the Atlantic Coast, rest on a solid foundation of the most dependable merchandise the world affords.

And these Stores, in turn, are the superstructure of a vast service organization which every branch of the Oil and Gas Industry is invited to use as a foundation or fulcrum for major operations.

We submit this list of manufacturers and their products as being the most impressive and universally recognized group ever assembled by any distributing organization in this great Industry.

FRICK-REID SUPPLY CORPORATION

COVERS THE FIELD WITH WELL MANAGED STORES FROM THE ROCKY MOUNTAINS TO THE ATLANTIC COAST

Pittsburgh ..... Tulsa

"FOR EVERY JOINT ON THE LINE"

6"-8"-12" Casing Head Gas gathering lines—Borger Field, Texas—all Victaulic - coupled.

Victaulic Couplings

6" Victaulic - coupled cast iron pipe for Outdoor Plunge of the New Biltmore Hotel. Santa Barbara, Calif.

8" crude oil line, Pampa, Texas. 12 men working 8 hours a day laid 3 miles and 800 feet with 8 road crossings where they buried the line.

TOWING a Victaulic-coupled line out to sea for a salt water supply for a hotel plunge—dragging a line across a river—or dropping several lengths coupled together into a ditch—do not harm lines connected with Victaulic Couplings.

Laid faster — and by unskilled labor — over uneven ground, in a trench or under water—Victaulic-coupled lines are automatically leak-proof—and stay leak-proof even when the line sags or is shifted under full working pressure.

Every joint has high tensile strength and considerable flexibility. The Victaulic Coupling is an expansion joint for the pipe lengths it connects. The line is strain-free for a wide range of temperature variations.

Victaulic Couplings and Fittings are available for pipe sizes from ¾ inch up for steel, wrought iron, spiral weld and cast iron pipe—for all pressures.

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26 Broadway, New York

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For detailed information on uses, users, installations, sizes, prices — write or mail this coupon.

The all-purpose coupling *"For every joint on the line"*

FLEXIBLE LEAK-PROOF
VICTAULIC
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PIPE COUPLINGS

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Please send Victaulic Bulletin No. 1.

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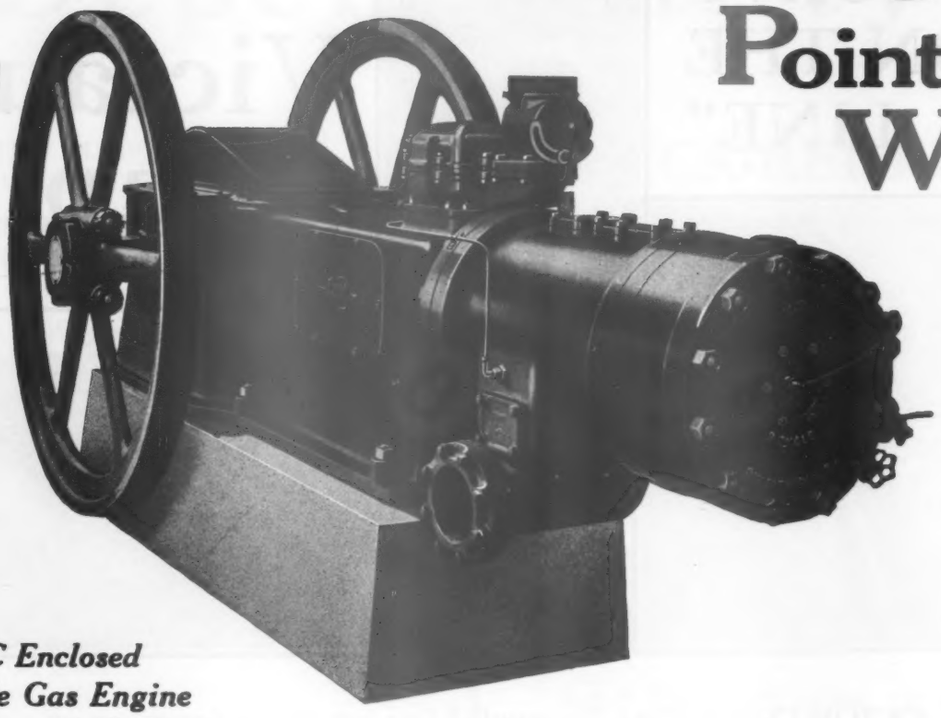
FOR CRUDE OIL, GAS, WATER, SEWAGE, COMPRESSED AIR, ETC.

Guarding the Points of Wear



Type C Enclosed Two-Cycle Gas Engine 40 H. P.—45 H. P.

ALL of the important points of wear in the Type C Gas Engine—the driving gears, cam shaft gears, governor, inlet valve, Wico igniter, main bearings—together with the bed plate, are entirely enclosed and protected from sand and dirt. This construction also serves to keep the lubricating oil free from grit and other foreign matter—a feature which means a longer, trouble-free life with lower maintenance costs.

Reid
TRADE MARK REGISTERED

OIL FIELD MACHINERY

Write any branch or distributor for complete information on these engines.

JOSEPH REID GAS ENGINE COMPANY
OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES:

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DISTRIBUTORS:

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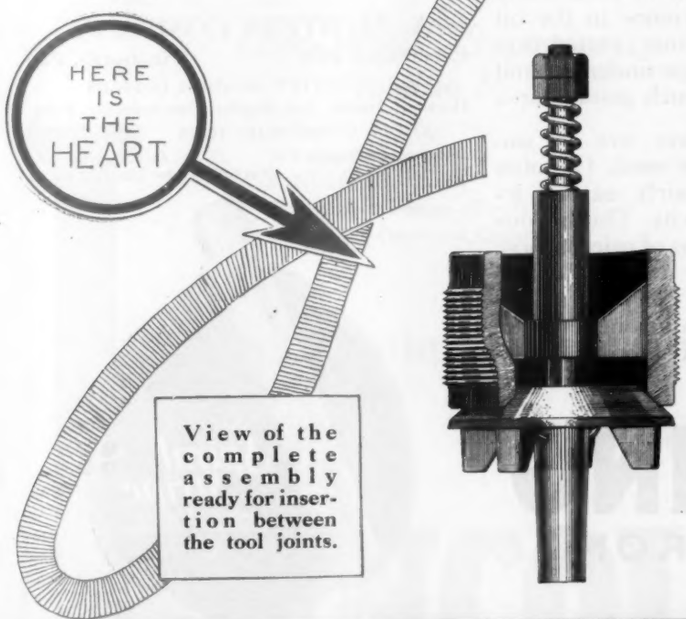
UNIVERSALLY ACCEPTED STANDARD

Any device of merit may have a more or less general local demand, but when that demand is extended to cover the world, and when it is generally accepted everywhere as the standard of excellence and efficiency, as is the case with the Baker Drill Pipe Float, then it is safe to conclude that here is an article supreme in its field and unequalled in any vital essential.

BAKER DRILL PIPE FLOAT

is a safety device which has proven itself reliable in every way and invaluable in deep well drilling. Its value lies not only in the prevention of serious accidents and damage which might result from a parting of the drill pipe, but also in the preservation of the rig equipment. The economies effected in lengthening the life of wire lines and brake bands alone will more than counterbalance the cost of the Baker Drill Pipe Float and occasional valve replacements. ¶ The effectiveness of the Baker Drill Pipe Float is evidenced by the regular orders received from hundreds of keen-minded superintendents and engineers, who specify it for use with every string of drill pipe they use, for they know it is the only absolutely reliable safety device. ¶ Only the best of materials, accurately machined, and a most rigid system of inspection, are used in the manufacture of the Baker Drill Pipe Float.



View of the complete assembly ready for insertion between the tool joints.

BAKER PATENTED VALVE ASSEMBLY

The heart of the Baker Drill Pipe Float — the Baker Patented Valve Assembly — has been designed with special thought to its basic strength and dependability, combined with a simplicity of construction which shall eliminate any possibility of it failing in operation. The cross member is deep and very strong; the valve is of nickel chromium; the valve seat is thinner; and there is ample passageway for circulation. SEND FOR LOOSE-LEAF CATALOG — The Baker Loose-Leaf catalog is full of valuable information which you should have available for constant reference—send for it today.

BAKER OIL TOOLS, INC.

(Formerly Baker Casing Shoe Company)

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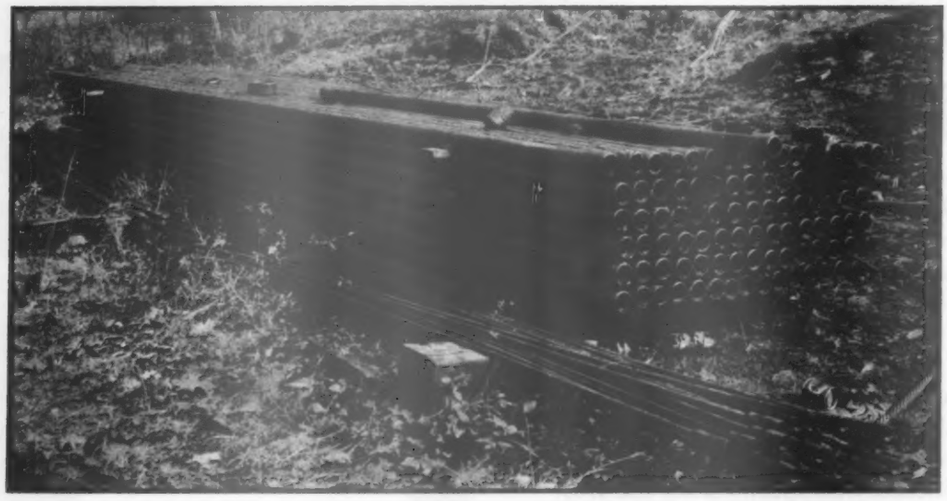
32 YEARS OF CONTINUOUS SERVICE WITH BYERS CASING . . .



Well at Macksburg, Ohio, Shows Outstanding Service Record Under Corrosive Conditions

RECENTLY, a well at Macksburg, Ohio, known as No. 1 Irish, was pulled, after 32 years of service.

This well was drilled in 1896, through a bed of No. 8 Cambridge coal, and has been producing a good grade of Pennsylvania grit oil. According to the foreman at the property, the casing in this territory is subject to corrosive action of sulphur water which drains down through the well.

When the casing. which is genuine Byers Wrought Iron, was pulled in October, 1928, it was possible to salvage all of the 4⅞" casing, amounting to 1400 feet, for use in drilling another well in the same vicinity.

The foreman, a man of practically thiry years of experience in the oil business in this territory, stated that he had never seen pipe under ground so long and still in such good shape.

Such records, however, are not unusual where Byers is used. Genuine wrought iron has fairly earned its reputation for longevity. The fibrous structure, the millions of microscopic slag filaments confer a degree of immunity to rust, vibration, shock, wear and tear which has never been equalled by cheaper ferrous material.

The illustration shown is an unretouched photograph of the casing taken after the well was pulled.

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GENUINE WROUGHT IRON

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I have your memo about some of my manufacturing friends dividing their purchases of motors between 'Linc-Weld' and whatever type formerly used.

Are you trying to sell me on bigamy? I'm against having more than one make motor just as I'm against having more than one wife."

"Linc-Weld" Superiority is due to

1. **Larger Shafts**
2. **Larger Bearings**
3. **Better Insulation**
4. **Stronger Frame (Steel)**
5. **Greater Overload Capacity**

"Yes, Pop—

I'm not selling bigamy, but trial preparatory to change. While you can and must put up with some shortcomings from a wife, there's no law to make you stand for it from a servant.

And when a *better* servant is available at the same cost, who doesn't tire, break or require sick leave—then it's inertia only that keeps a man from change.

Now, 'Linc-Weld's' famed overload capacity means that it will work early and late for us on a grind that wilts our present motors.

'Linc-Weld's' complete welded steel construction prevents any breakage—and its double size shafts and bearings, with superinsulation, preclude the time-off-for-repairs that is troubling us.

So, Pop, if I'm selling you bigamy, it's in the same sense that bigamy means one wife too many . . . and for that matter monogamy, in certain instances, is the same thing."

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At Kettleman Hills, California, in one of the toughest formations ever encountered in modern drilling, BJ Disc Bits made 4967 feet. The well was then surveyed and found to be off less than 2 degrees. Two-thirds of the hole was drilled with 18" BJ Disc Bits.

This is additional proof of the drilling of straight hole with Disc Bits. Discs with special BJ hard facing were used. These discs are heat-treated *after* hard facing by the new BJ electrical process.

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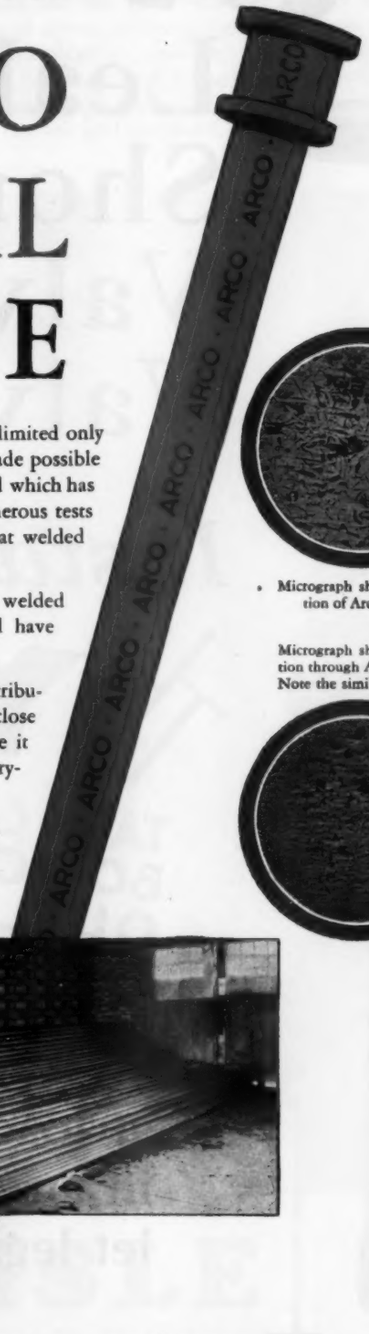
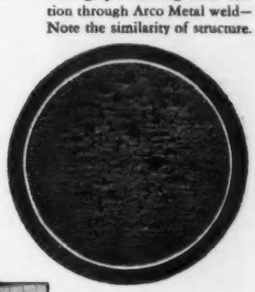
If you are not familiar with this remarkable new corrosion-resisting cast iron pipe that can be cut and threaded with standard pipe tools, write today for complete information.



Micrograph showing cross section of Arco Metal Pipe.

Micrograph showing cross section through Arco Metal weld—Note the similarity of structure.



Photograph shows car load of Arco Metal Pipe in 20 ft. welded lengths ready for shipment.

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Every Strong trap has an *ANUM-METL* seat and disc, guaranteed to stay tight for one year regardless of pressure or temperature. A Strong trap cannot become air-bound, neither can it wire draw.

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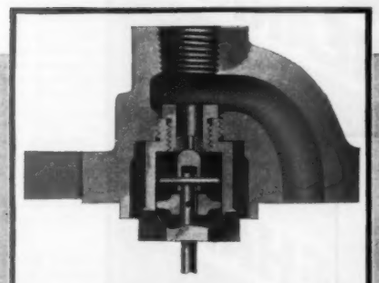
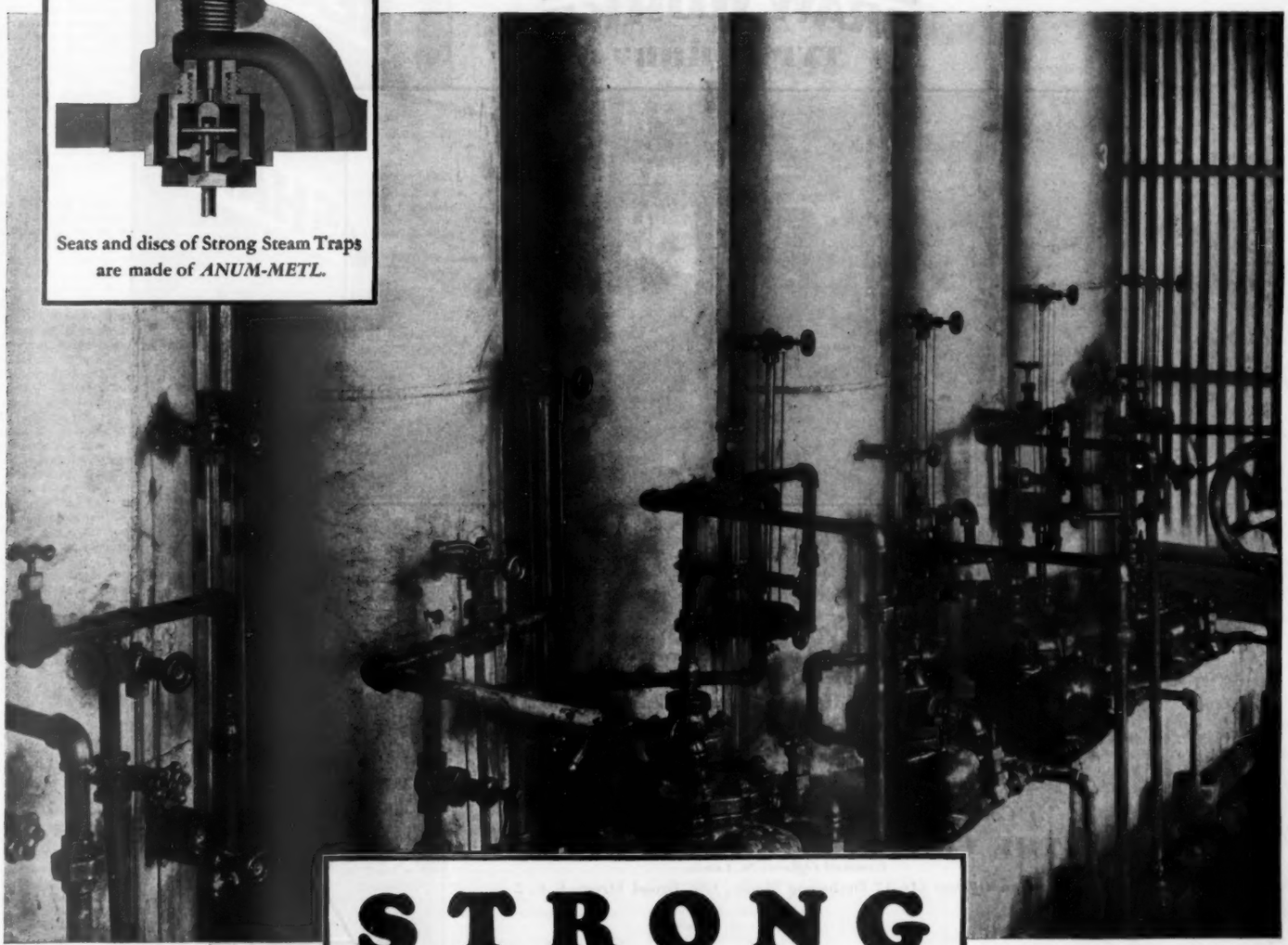


Seats and discs of Strong Steam Traps are made of *ANUM-METL.*



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Reading from left to right: Buster Wyatt, rough neck; Ellis Hamill, driller; Ike West, Continental Houston salesman; J. O. Mayfield, Continental Houston local manager; Curt G. Hamill, owner of the Hamill Drilling Co.; Claude Hamill, driller.

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The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

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Optimism Felt Despite Big Production

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Crude Being Withdrawn from Storage in Mid-Continent. Operators More Hopeful as to California and West Texas

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

Despite the fact daily average crude oil production in the United States last week attained the highest level in the history of the industry, optimism is prevalent regarding the future and considerable talk is heard regarding further increases in the crude oil price schedule. The increase in output last week came largely from the Texas Panhandle and California, two new wells in Gray County, Texas, being responsible for the big gain there while deep zone completions at Santa Fe Springs contributed to the increase on the Pacific Coast.

Operators in California are hopeful the situation there will become stabilized within the near future although no material decrease in production is expected for some time due to the big drilling campaign under way. West Texas is not looming as the menace it did until comparatively recently owing to further encroachment of water and the substantial decline in potential as recorded by the latest gauges.

Crude oil is being withdrawn from storage in the Mid-Continent area, especially in Oklahoma and Kansas, while drilling operations being carried on in both these States will serve to hold production near its present level for some time, the demand for high gravity crude is gradually increasing.

While it is problematical what will be accomplished next week at the conference in Colorado Springs of representatives of the Federal and various state governments and oil men from throughout the country, this getting together of all those affected by the overproduction of crude oil cannot help but result in good for the industry as a whole. If the meeting should agree upon some definite plan of action, the psychological effect will be immediate.

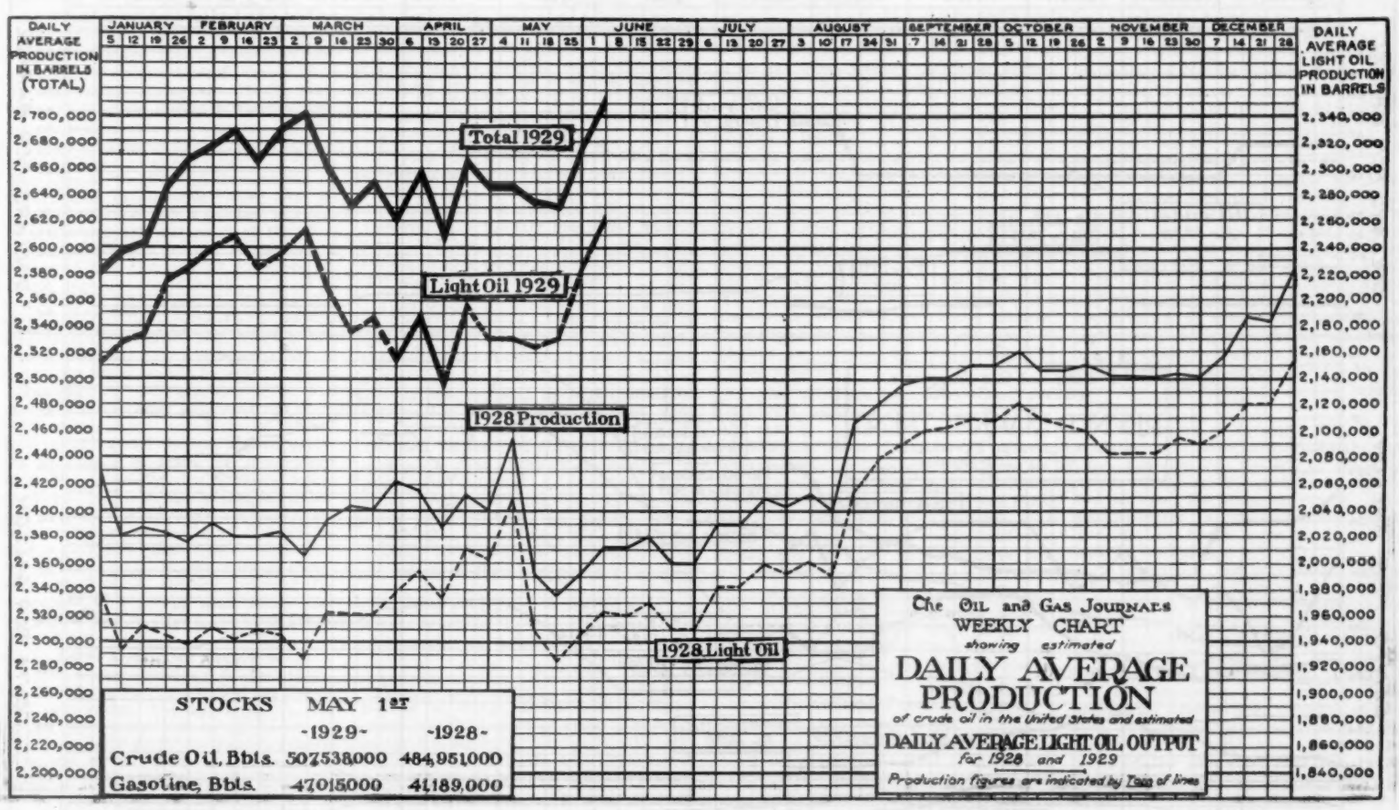
The refined oil market, especially gasoline, is firm and this fact is having its influence on the general crude oil situation. Consumption of gasoline during April was especially large, stocks being reduced more than 1,000,000 barrels. Automobile registrations are breaking all previous records. If some plan is formulated to curb overproduction of crude, the industry should experience a good period of prosperity.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in United States for week ended June 1, and a comparison with the previous week follows:

	June 1		May 25	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,120	.....	10,060	.....
Burbank	20,285	.....	20,400	.....
Other Osage Fields	25,670	.....	25,860	.....
St. Louis-Pearson	88,465	.....	93,315	.....
Cushing and Shamrock	19,480	.....	19,800	.....
Bristow	19,325	.....	19,400	.....
Allen	23,695	.....	23,740	.....
Seminole	297,310	.....	300,415	.....
Northern Miscellaneous	126,910	.....	122,290	.....
Southern Fields	55,050	.....	55,270	.....
Total Oklahoma	686,310	.....	690,550	.....
West Texas—				
Hendricks	144,520	.....	143,905	.....
Yates	106,712	.....	98,710	.....
Remainder	120,230	.....	121,722	.....
Total West Texas	371,462	.....	364,337	.....
North Louisiana	29,275	5,860	29,585	5,840
Arkansas	22,670	48,775	22,750	48,775
North Central Texas	137,066	.....	136,605	.....
Texas Panhandle	81,308	.....	63,945	.....
East Central Texas	19,539	.....	19,934	.....
Kansas	118,410	.....	116,525	.....
Total Mid-Continent Area	1,466,040	54,635	1,444,211	54,615
Gulf Coast	.....	144,434	.....	146,710
Southwest Texas	.....	81,817	.....	80,042
Eastern	115,500	.....	115,000	.....
Rocky Mountain Area	74,297	.....	72,882	.....
California—				
Santa Fe Springs	201,500	.....	181,000	.....
Long Beach	174,000	.....	176,000	.....
Torrance	2,500	10,000	2,500	10,000
Huntington Beach	42,000	.....	42,000	.....
Elwood	27,750	.....	28,000	.....
Inglewood	13,000	9,750	13,000	9,500
Ventura Avenue	57,000	.....	56,000	.....
Seal Beach	39,500	.....	40,000	.....
Remainder of State	52,000	154,000	52,000	155,000
Total California	609,250	173,750	590,500	174,500
Total United States	2,265,087	454,636	2,222,593	455,867
Grand Total		2,719,723		2,678,460

Total Increase, 41,263 Bbls.; Light Oil Increase, 42,494 Bbls.



Oklahoma Kerosene Prices Advance

Other Products Generally Sluggish. Government Reports Show Unexpected Decline in Gasoline Stocks During April

By C. O. Willson

Kerosene was practically the only product in the Oklahoma (Group 3) market to show any price strength for the week ending Tuesday. Buying improved and sellers in Oklahoma advanced their price from one-fourth to three-eighths cent establishing a market of 5⅞ to 6 cents on the 41-43 water white grade.

With the exception of kerosene the Oklahoma market was sluggish. The start of June did not bring the rush of spot gasoline business that was expected and the advances in refinery gasolines and natural gasolines have not materialized. Several of the large refiners are selling the U. S. Motor grade at 9¼ cents. Other refiners, however, are finding it necessary to continue at 9 cents to keep their output moving. Small quantities of resale material have been available under the 9-cent figure.

Natural gasolines failed to advance to 8 cents for the A and AA grades as was expected. The going market on these grades the first of the week was 7½ to 7⅝ cents with the movement not heavy at these prices. Substantial buying by coastal refiners who supported the market, early in the year is needed to strengthen the natural prices. The manufacturers are expecting this business to come into the market at any time due to the fact June is usually a month in which withdrawals from refinery storage are started and larger quantities of natural gasoline are required in preparing this material for the consuming trade.

A sale reported the first of the week may aid the natural gasoline market. The Phillips Petroleum Co. sold a full cargo of its aviation gasoline to an English buyer. This material is a 100 per cent superstabilized natural gasoline. Movement to the coast started immediately. The cargo will be lifted in July. The Phillips company is the largest manufacturer of natural gasoline in the Mid-Continent Field and this purchase will strengthen its position in the domestic market.

The Warren Petroleum Co. recently completed shipment on two cargoes of similar material for Gulf Coast delivery.

A few Oklahoma sellers report an improved demand for fuel oil and gas oil but this improvement is yet to be reflected in further price advances. For the country as a whole, based on latest government reports, the supply of these products still exceeds the demand and the buyers dominate the market. Sellers of petroleum wax saw their market drop to 2½ cents a pound last week, the low point in Mid-Continent prices for several years.

REFINED MARKET BAROMETER

No important price changes developed in refined markets throughout United States during the past week. Refinery gasolines for the most part were maintaining the advances of the previous two weeks although the demand has not been as heavy as expected in several areas. Export gasoline prices which have not been raised recently are expected to advance soon. Higher tank wagon and service station prices in the eastern states also are anticipated as an aid to the domestic refinery market. Kerosenes have been more active at interior points and several refiners in the Mid-Continent and Middle West have advanced their prices. Outside of West Texas where a few refiners have advanced their prices the fuel oil and gas oil market was practically unchanged. Natural gasoline continued sluggish in the Mid-Continent with steady prices in California. Neutral oil, steam refined stock and bright stock prices were firm with an improved demand for motor oils. Wax prices were lowered both in the East and Mid-Continent.

Mid-Continent—Refinery gasoline prices generally unchanged with fair domestic movement. Kerosene prices higher in Oklahoma, Kansas and North Texas. Fuel oil and gas oil prices steady except in West Texas where spot prices have been advanced. Natural gasolines slow and prices lower. Lubricating oil prices firm. Wax prices lower with little demand.

East Coast—Steady to strong market for all products. Higher export and tank wagon prices expected. These advances if they materialize will aid refinery gasoline market. Lub oils stronger. Kerosene holding its own. Fuel oil market steady despite increased shipments from South America.

Pennsylvania—Refinery gasolines steady. Strong demand for steam refined cylinder stocks and bright stocks. No change in other products.

Chicago—Refinery gasoline movement slow at higher prices and concessions reported in spot market. Kerosene prices higher. Fuel oil movement more active.

Gulf Coast—Strong demand for gas oil suitable for cracking. Steady movement of fuel oil at firm prices. Neutral oil prices unchanged.

California—Prices unchanged.

Government Report

The Bureau of Mines report covering refinery operations for April was released during the past week. Although this report shows that crude oil is still being run to storage with a large increase in fuel oil and gas oil storage, the refinery situation from the standpoint of gasoline demand and supply is much better than had been predicted.

The demand for gasoline based on the government reports for the first four months of this year was 14.5 per cent greater than the same period in 1928, the April report showing an increase of over 18 per cent when compared with April of last year. Estimates made early in the year placed the 1929 demand for gasoline at 10 to 12 per cent over 1928, an increase which is in line with the trend over the past few years.

It is pointed out that the government reports on gasoline consumption are based on refinery shipments and do not reflect actual consumption. Jobbers often buy for storage resulting in abnormally high shipments from refiners which are later equalized when jobbers draw on this storage to supply the consuming trade. It is known that jobbers purchased heavily

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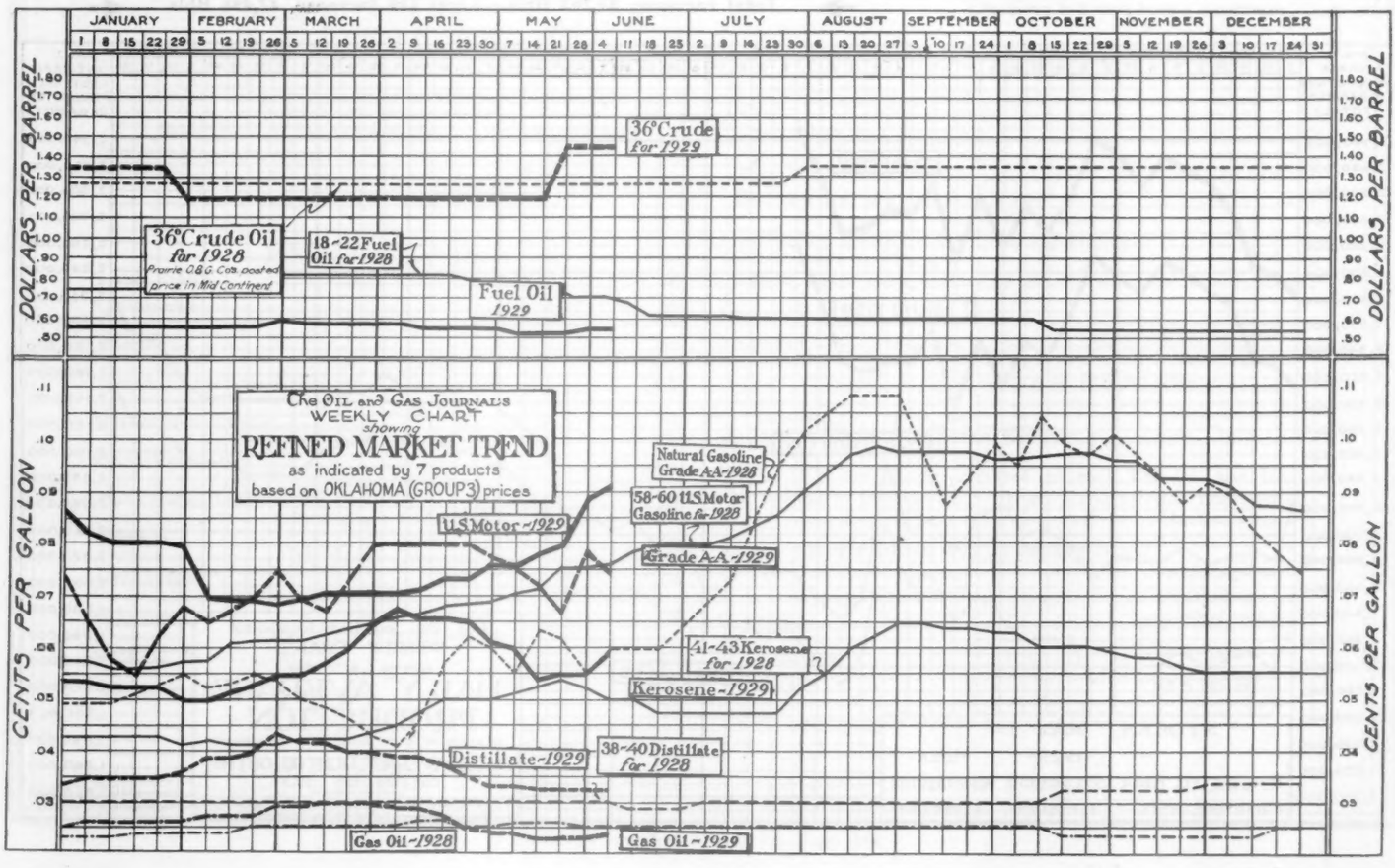
MID-CONTINENT REFINERY OPERATIONS
(Data given in thousands of barrels)

	Crude run to stills			Gasoline production			Gasoline stocks		
	April, 1929	March, 1929	April, 1928	April, 1929	March, 1929	April, 1928	April, 1929	March, 1929	April, 1928
Okla., Kans. ..	9,539	9,298	8,880	4,981	5,026	4,803	5,622	5,849	4,198
Texas*	5,024	4,681	3,567	1,851	1,717	1,386	1,018	886	795
La.-Ark.* ..	2,145	2,233	1,740	615	659	522	257	271	107
Total ...	16,708	16,212	14,187	7,447	7,402	6,711	6,897	7,006	5,100

*Except Gulf Coast.



Break Precedent at Colorado Springs

For First Time in History Federal and State Governments Will Confer With Oil Industry on Conservation Problems

By Andrew M. Rowley

For the first time in the history of the petroleum industry, official representatives of the Federal Government, the different oil-producing states, the American Petroleum Institute and various other associations and organizations connected with the oil business, and officers of large and small oil companies from throughout the United States will meet next Monday at the Broadmoor Hotel, Colorado Springs, to discuss the general principles relating to conservation of petroleum and endeavor to formulate some plan which may be made effective in the different states where flush production of crude oil has depressed the entire industry.

Discussion of an interstate compact in which the Federal Government would be a party through possible sanction by Congress, probably will be made incidental to a consideration of the main, general principles of conservation, prevention or minimization of crude oil overproduction, and ways and means of best handling situations which develop in the different states when new oil fields or deeper producing horizons are discovered.

States to Be Represented

A dozen or more oil associations and organizations have appointed official representatives to attend the meeting which at the request of President Herbert Hoover was called by Secretary of the Interior Ray Lyman Wilbur, acting as chairman of the Federal Oil Conservation Board. In addition the governors of seven western oil-producing states, in which general territory the overproduction of crude oil has been a most serious problem, have accepted invitations to be present at the meeting or to be adequately represented by official representatives. Presence of the governors, together with members of the different state conservation organizations and men familiar with conditions in the oil industry who will represent the states, makes the coming meeting different from any ever held.

Mark L. Requa, director general of the oil division of the United States Fuel Administration during the World War, will preside at the Colorado Springs meeting on the request of Secretary Wilbur.

President Hoover has empowered Secretary Wilbur to present to the meeting the views of the Federal Government on the question of oil conservation and the petroleum industry is awaiting with intense interest the statement of the Government's position in the matter. In a report of the Federal Oil Conservation Board, signed jointly by Mr. Hoover as a member of that board, the matter of a state compact was suggested as a possible remedy of the situation and it is felt Mr. Hoover believes such a compact could be drawn up which would be entirely legal.

Leading oil company executives and general counsel have expressed the opinion a state compact to which the Federal Government would become a part, covering production of crude oil, the drilling of wells or the operation of pools, would be illegal. However, the petroleum industry, through the American Petroleum Institute, has stated its mind is open on this subject and that it is entirely willing to co-operate to the fullest extent with the Federal Government and the different states in any plan which may be deemed best to handle the overproduction situation.

Legal Committee Appointed

E. B. Reeser, president of the American Petroleum Institute and of the Barnsdall corporation, has appointed the following legal committee to act in an advisory capacity to the Institute's general committee on World Production and Consumption of Petroleum and Its Products; C. B. Ames, The Texas Corporation, New York, chairman; J. C. Denton, Mid-Continent Petroleum Corp., Tulsa; Hines H. Baker, Humble Oil & Refining Co., Houston; Paul H. Gregg, Union Oil Co. of California, Los Angeles; John H. Brennan, the Barnsdall Oil Co. of California, Los Angeles; and Felix T. Smith, Standard Oil Co. of California, San Francisco. In addition to these leading legal lights of the oil fraternity, James A. Veasey, general counsel of the Carter Oil Co.; Burdette Blue, of the Indian Territory Illuminating Oil Co., and others will attend the meeting as representatives of states in which they reside, Mr. Veasey and Mr. Blue having been appointed by Governor Holloway of Oklahoma as members of the committee representing Oklahoma at the meeting.

It is expected that the question of a tariff on imported crude oil and other subjects entirely without the jurisdiction of the different states will be presented at the Colorado Springs meeting and discussed by representatives of the different organizations which will attend. Those who are intensely interested in stabilization of the petroleum industry, the solving of the overproduction situation and the formation of a plan which will remove the overproduction menace with its consequent depression of prices, feel the natural gas conservation law recently enacted by the State of California might well be studied by all who intend to attend the Colorado Springs meeting. It is thought if it is seen a satisfactory state compact cannot be formulated and if other plans fail to meet the approval of those present, it might be the best plan to urge all oil producing states to make an immediate effort to have enacted a natural gas conservation measure following the lines of the features of the California law.

In addition to the list of associations which have named representatives to attend the Colorado Springs meeting, as published in the May 30 issue of The Oil and Gas Journal, the Mid-Continent Oil & Gas Association has selected to represent it A. M. Landon, Independence, Kans.; C. C. Herndon, Tulsa; H. H. Smith, Tulsa; J. D. Collett, Fort Worth; N. C. McGowen, Shreveport; and A. L. Derby, Wichita, Kans.

Governor Holloway of Oklahoma has named the following to represent Oklahoma at the meeting: E. W. Marland, Ponca City; Henry McGraw, Fred S. Cook, James A. Veasey and Pat Malloy, of Tulsa; Burdette Blue, Bartlesville; J. J. Cosgrove, Ponca City; W. R. Ramsey, Oklahoma City; Roy M. Johnson, Ardmore; W. E. Grisso, Seminole, and Attorney General Edwin Dabney.

Secretary Wilbur has announced the first day of the conference will be taken up by adresses by Mr. Requa, George Otis Smith and the governors of the various oil producing states. Representatives of the American Petroleum Institute and other organizations and associations will have an opportunity on the second day to present their views. Secretary Wilbur will outline the proposals of the administration at the opening of the conference.

GASOLINE STOCKS REDUCED IN APRIL WITH LESSENED INCREASE IN CRUDE

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., June 3.—An abnormal consumption of gasoline is shown by the monthly petroleum statement for the month of April prepared under the supervision of G. R. Hopkins, Petroleum Economics Division, United State Bureau of Mines.

During the month of April the daily average gasoline production amounted to 1,155,000 bbls., a new record, and an increase over April, 1928, of 18 per cent. Imports were 822,000 bbls., the highest since October, 1926. There was also shown in this period a decrease of gasoline stocks of 1,000,000 bbls.

Unofficially it is believed that a very considerable portion of this increase in consumption resulted from excessive gasoline purchases by car owners, taxicab companies, large concerns using buses and trucks as well as distributors in anticipation of the 2-cent tax that went into effect in New York State May 1. The best estimate of the consumption of gasoline in New York State during the past year indicates a consumption of about 30,000,000 bbls. per annum or about 2,500,000 bbls. per month. To a considerable extent these figures will be checked up when the consumption for the month of May is reported as the decrease in that month is likely to be practically equivalent to the increase for April, or about 10 per cent above the consumption of April, 1928.

Crude Petroleum

According to reports received by the Bureau of Mines, Department of Commerce, the production of crude petroleum in the United States during April, 1929, amounted to 80,110,000 bbls. This represents a daily average of 2,670,000 bbls., a slight increase over the daily average of the previous month, an increase over April, 1928, of 11 per cent.

Of the three leading producing states, Oklahoma showed a small increase in daily average production over March, but both Texas and California fell off slightly. Production in Kansas increased sharply as operations in the Sedgwick Field made themselves felt. Another area of increased output was the Texas Gulf Coast, where considerable success has attended deeper drilling and extensions. Daily average production in Texas, exclusive of the Gulf Coast, fell off as the increase in output of the Salt Flat Field was insufficient to balance the decline in West Texas. Daily average production in the Appalachian district showed an increase for the fourth consecutive month.

Stocks of crude petroleum east of California increased slightly over 1,000,000 bbls. in April as compared with an increase of about 2,700,000 in March. This increase took place entirely in refinery stocks since tank farm stocks decreased—the first since November, 1928. Stocks of light crude in California continued to increase, but stocks of heavy crude and fuel oil in that state fell off slightly.

Stocks of all oils increased 6,087,000 bbls. during April and reached a new high level of 649,617,000 bbls. Over half of the April increase in these stocks was recorded in gas oil and fuel oil stocks held east of California.

Refined Products

Daily average runs to stills of crude petroleum attained a new high level in April when they amounted to 2,682,000 bbls. This represents an increase over

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PROHIBITS BEACH DRILLING

LOS ANGELES, Calif., June 1.—Governor Young who recently affixed his signature to Senate Bill No. 560 providing for the conservation of gas in California oil fields, has also signed Assembly Bill No. 35 preventing further oil drilling upon the tide lands belonging to the state. The governor has issued the following statement respecting these bills:

"In signing Senate Bill No. 560, which provides for the elimination of all unnecessary waste of our natural gas resources, I feel that we are contributing to a conservation program national in scope and of particular importance to California.

"A continued blowing of large amounts of natural gas into the air represents a waste of irrecoverable values not alone as measured in heat and power values, but also the loss of an important factor in the recovery of oil.

"The provisions of the act relate to the duties of the Department of Natural Resources as to the drilling and inspection of oil and gas wells and prescribes legal procedure looking to the abatement of all unnecessary waste of natural gas.

"Particularly important is the legal encouragement and sanction given, whereby the oil and gas supervisor is permitted to authorize in the public interest agreements entered into by operators in a given oil and gas producing area for the purpose of properly exploiting such areas.

"This legislation is in line with action taken a year or more ago by the present state administration, by which the directors of three state departments, a member of the Railroad Commission, and the attorney general, were appointed by the governor to confer with the oil operators of the state, with the purpose of securing voluntary and mutual co-operation looking toward the conservation of gas and oil.

"This action on the part of the state has produced very excellent results and has been backed up heartily by the oil people themselves.

"The present bill is largely the result of a further desire on the part of the oil and gas industry in California to bring order to their business, through state regulatory measures as provided for in this measure. It has also been drawn with definite consideration for California's part in the national program of conservation to which President Hoover made so great a contribution as Secretary of Commerce, and in which we have been asked to co-operate further by the President and Secretary of the Interior Wilbur.

"The signing of Assembly Bill No. 35 contributes in some measure to the purpose of Senate Bill No. 560 by the elimination of any further permits for drilling for oil upon the state tide lands. This bill preserves to our people the highest use that our beach lands can be put to, namely, recreation.

"Another bill for this same purpose was introduced and signed at the January portion of the recent legislative session. This January bill was an urgency measure, protecting the beaches until September 1, by which time bill No. 35 will have taken effect, so that the details of the permanent bill could be most thoroughly worked out. Scores of persons and groups, interested both in the conservational, legal and industrial aspects of the problems, have co-operated to make this bill as nearly perfect as possible."

Agree to Restrict Kettleman Hills

Government Is Expected to Approve Plan of Operators Which Will Prevent Needless Flood of Oil

By L. P. Stockman

LOS ANGELES, Calif., June 1.—Although California production is more than 100,000 bbls. per day in excess of the 1928 daily average, with no immediate substantial reduction in sight, the black clouds which have darkened the local production horizon took on a silvery hue this week when Kettleman Hills' operators unanimously agreed on a definite conservation program restricting the production of that enormous potentially-productive field. The success of this move is without doubt the most important development which has taken place in the oil industry for a long time, as unrestricted development in that vast area might have precipitated a very serious condition not only in California but throughout the United States as well.

The importance of the agreement reached by Kettleman Hills' operators is quite obvious to those familiar with existing structural conditions and the quantity and quality of oil produced in that section. It might not be amiss, however, to mention the fact that the Milham Exploration Co.'s discovery well is still flowing 3,800 bbls. of 60.2 gravity oil and about 75,000,000 feet of wet gas daily, several months after blowing in. No diminution of flow has yet become discernible, in fact the well is yielding just as much today as when it was capped last October after running wild for several weeks.

Field of Three Domes

The Kettleman Hills anticline which extends southeastward from the Coalinga Field to Lost Hills, a distance of about 35 miles, contains three separate and distinct domes, one of which, the north, has been proven productive. Two of these have perfect closure and with one already producing it is logical to assume that at least one of the other two will likewise be found productive. The extent of the north dome is still undetermined although it may be found productive for a distance of more than ten miles in as much as the General Petroleum Corp. encountered the Elliott gas zone on its Ochsner lease more than seven miles southeast of the discovery. Developments up to the present time indicate that the north dome will be by far the largest single structure ever opened up in California and if all three domes are ultimately found productive the Kettleman Hills anticline may perhaps yield more oil and gas than the celebrated Newport Beverly sheer zone, along which are located the Long Beach, Dominguez, Rosecrans, Huntington Beach, Potrero, Seal Beach, Inglewood, Newport and Beverly Fields of Los Angeles basin. The possibility of this remains to be seen, however, and depends upon whether subsequent drilling reveals the existence of a highly-saturated oil sand or whether future production will be derived exclusively from a high pressure gas horizon. At any rate this major anticline has enormous possibilities and could easily upset the apple cart without much trouble especially because of the exceptionally high gravity oil which would have a very adverse effect on the gasoline market.

Subject to Government Approval

The agreement reached by Kettleman Hills' operators is still of a rather tentative nature in as much as it is subject to ratification by Government officials but this is more or less of a routine nature. George Otis Smith, representative of President Hoover, left Los Angeles a few days ago with a definite proposal which if ratified will eliminate Kettleman Hills from the production picture for another year and consequently tend to stabilize conditions, since Santa Fe Springs and other disturbing elements will have ceased to be the dominating factors in state production. Before mentioning the agreement reached it might not be amiss to mention the fact that a recent survey indicated the probability that Ketleman Hills would be producing well in excess of 50,000 bbls. per day before the current year drew to a close if drilling operations continued uninterrupted and no ban was placed on production. Additional completions would have shot daily production up to 75,000 bbls. per day shortly after the new year rolled around with a further increase from time to time.

Provisions of Agreement

The agreement reached by Kettleman operators this week climaxes a long concerted attempt extending over a period of several months to regulate future operations. The operators committee, consisting of E. D. Reiter, Miley Oil Co.; Ellsworth McGowan, Kettleman Hills Oil Co.; W. H. Berg, Standard Oil Co.; W. L. McLaine, General Petroleum Corp.; J. H. Raney and P. N. Longan, Milham Exploration Co., and R. E. Ferguson, an independent land owner, went into every angle of the situation both from a drilling and production standpoint. Legal technicalities, drilling obligations and other perplexing problems which seemed insurmountable nearly ended negotiations at several points but perseverance finally won out. The plan removing Kettleman Hills as an immediate threat is a two-way agreement between operators and the United States Government. It is proposed that Kettleman Hills' operators continue their respective development activities in the north dome uninterrupted, provided, however, that drilling operations must be suspended above the pay. This will prevent uneconomic development by eliminating waste of natural gas and prevent this field from further disturbing present unsettled conditions.

In consideration of this proposed development plan the Government will guarantee to protect lessees by validating existing applications and leases on the assumption that discovery has actually been made and contract obligations fulfilled. This concession, which is subject to ratifaction, will be presented to President Hoover immediately upon the return of George Otis Smith to Washington and will, if sanctioned, take care of legal technicalities which some thought might jeopardize the validity of prospecting permits if drilling operations were arbitrarily suspended. The three drilling projects offsetting the Milham Exploration Co.'s discovery well will be drilled into the pay as soon as practical in order to reduce the gas pressure on the present producing well. This projected reduction will permit the Milham Exploration Co. to shut in its discovery, No. 1 Elliott, which cannot be undertaken under present conditions because of the enormous gas pressure which is well above 2,000 pounds per square inch.

The three new wells which are to be drilled into the pay in an effort to relieve the pressure on the discovery well are to be equipped with exceptionally heavy material with supplemental gates in order to sustain heavy pressure when the time comes to close in all four producers. If the proposed plan to shut in the Milham's discovery and subsequent completions can be carried forward to a successful conclusion the Kettleman Hills Field will remain in status quo until such time as the Government decides it would be advantageous to resume activities. This will prevent any operator owning fee acreage from kicking over the traces and voiding the attempt to hold back the production of this field until a more opportune time. It might be mentioned in passing that although the Standard Oil Co. of California owns every alternate 640 acres in fee this company is anxious to retard development indefinitely and even went so far as to initiate the present movement.

Will Prevent Needless Flood

With Kettleman Hills probably removed from the picture for a year the local situation does not look as serious as it did a few weeks ago although refiners and pipe line companies will be obliged to store considerable quantities of crude and refined oils during the next several months due principally to intensive development work at Santa Fe Springs. The accompanying production graph reveals a potential daily production of 920,000 bbls. at the end of May and indicates the ease with which California could exceed a daily output of 1,000,000 bbls. if necessary. Additional development work in the Ventura Avenue, Elwood, Dominguez, Rosecrans, Fullerton, Inglewood and Seal Beach Fields could easily add 250,000 bbls. per day to the present potential and it is quite likely that California could produce more than 1,500,000 bbls. per day for a short period with stimulated drilling activity and the removal of existing curtailment measures. It is needless to say that Kettleman Hills would play a very important part in this theoretical potential, which of course is merely cited to show the enormous future reserves of California.

New Storge Built

Several of the larger California companies have recently found it necessary to augment existing storage facilities because of the present high rate of production and additional tanks will become necessary if production continues at the present rate. The Union Oil Co. recently completed eleven new steel tanks with an aggregate rated capacity of 1,162,000 bbls., seven having been constructed at Wilmington, three at Torrance tank farm and one at Stewart. In addition to this steel tankage two old reservoirs were reconditioned adding 1,550,000 bbls. more room. The reservoirs were No. 5 at San Luis Obispo and No. 12 at Stewart, both having been damaged in April, 1926, when a bolt of lightning hit the two tank farms within a short time of one another. The Texas Company has just completed tentative plans for a new tank farm to be constructed near Cypress where the company's pipe lines converge, as soon as the necessary additional acreage can be secured. Present plans call for a total of fifty new steel tanks but they will be constructed in groups in order to prevent the construction of any excess. The Wilshire, Rio Grande and a number of other California companies are also either already augmenting existing facilities or have plans under consideration.

Santa Barbara Field

The recently discovered field at Santa Barbara is still somewhat of an unknown factor as far as future production is concerned, although of course the existence of a new field at that point has been definitely determined. If the Santa Barbara Field proves highly prolific, as some anticipate, it is needless to say that California companies may be obliged to con-

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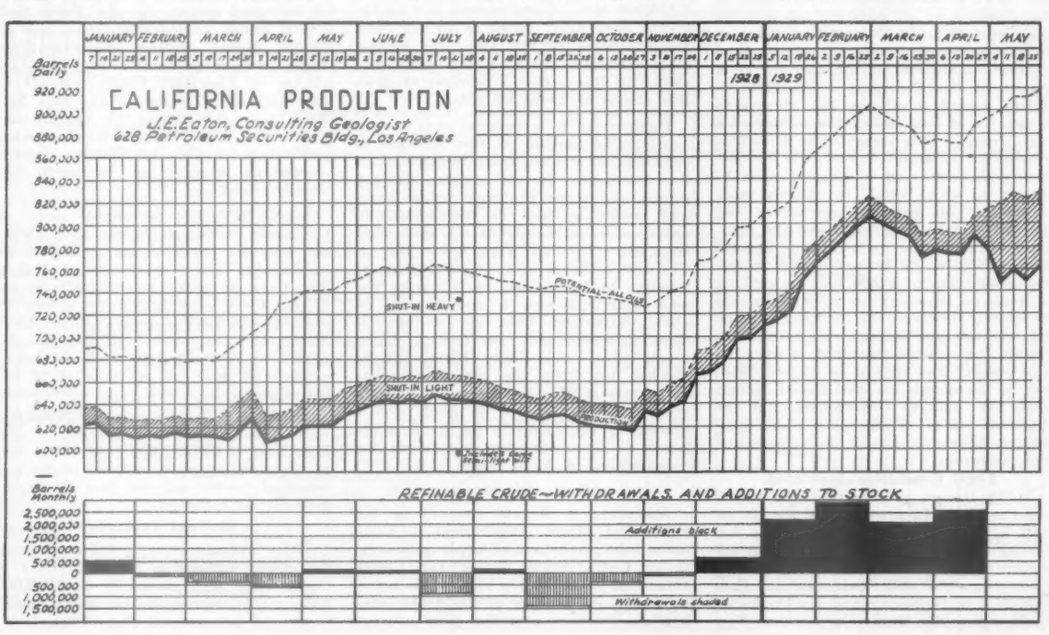


Rapid Growth in Engineering Practice

Technical Branches of Petroleum Industry Studying Many Problems Relating to Natural Gas, Crude and Refined Products

By L. G. E. Bignell
Petroleum Engineering Editor

With technically trained men and women being relied upon more and more by all modern industries for the solution of their problems and the development of new ideas to promote progress and expand business, it is only natural that the petroleum industry, fifth in importance in point of value of manufactured products, should draw a large number of engineers, chemists, and others trained in the arts and sciences into its field of activities.

The engineer's work in the petroleum industry has grown year by year as the importance of the industry increased until now there are hundreds of specialists to be found in every department and this number is increasing as need for further study of problems becomes necessary.

Many Are "Engineers"

The term "engineer" as used here is not confined only to those who have had the opportunity of receiving their training in institutions of higher education, but also embraces those men and women today holding high places in the industry who got there through hard work and natural ability coupled with the other attributes that go to make any well ordered individual a success.

In the early days of the industry when there was little demand for its products there were numerous physical and mechanical problems needing solution and for the most part they were taken care of by the ingenuity of the individual interested, and out of such early practices have grown many of the present day customs of the oil industry.

Man has always prized salt for seasoning his food and at times has been forced to dig or drill holes into the earth to secure brines from which this element could be obtained by evaporation of the water by boiling, and from the drilling methods used in the salt industry many of the earlier practices of the petroleum industry were adapted.

The medicinal properties of crude oil have been known for centuries and it has been sought in natural seeps and shallow dug wells for such purposes in many countries.

However, the art of refining this crude oil to make other products is of comparatively recent date, for not until the last century had civilization advanced to that stage where it required kerosene for reading lamps and lubricating oils for machinery.

The advent of the automobile and internal combustion engines has come about since the beginning of the twentietn century, while the airplane and dirigible are now in process of commercial development.

Because of this trend of development it was only natural that the first technically trained men should be employed in the refining division of the oil industry, and because the cost of finished products was largely influenced by the prices paid for moving the crude oil from the well to the refinery the pipe line department early turned to the mechanical and hydraulic engineer for help.

Field Experience Valuable

Until recent years the drilling problems were largely solved by men raised in the industry and trained by actual field experience. And this experience was good. Without it the engineer of today who is assisting in solving production problems would have found his work much harder and progress much slower

The trained production engineer admits owing a debt to the older type of "production men" and the engineer's first work was confined largely to reducing old "rule of thumb" methods to workable formulas. As deeper drilling necessitates lowering production costs the engineer's work is expanding, and today he is engaged in the solution of many problems dealing with the future requirements of the industry and these problems will merge into others now being studied by technical workers in other industrial fields.

As a natural course of events these different classes of engineers have banded together into technical societies for mutual aid and support, and special divisions within the older national engineering societies have been formed by petroleum engineer members for the promotion of good practices and exchange of ideas.

After the advent of the petroleum engineer into the industry, the idea of co-operation spread to the executives of the oil companies and they banded together in a body known as the American Petroleum Institute and through the work of its various committees standardization of equipment for different departments of the industry has been accomplished.

Another group of highly trained technicians has been gathered together by the United States Bureau of Mines and for several years has done excellent work relating to problems in development, production, refining and transportation of petroleum and natural gas.

Through these several bodies of engineers problems having to do with increasing recovery of petroleum from oil sands in the older fields, and the application of the air-gas lift principles to newer fields have been studied closely and many definite and economical results achieved.

Problems Confronting Industry

Other problems now engaging the attention of engineers in this and other countries are studies of the gas-oil ratio, paraffin in oil wells, geophysical prospecting, the application of a vacuum to oil wells, reduction of evaporation losses of petroleum and gasoline, corrosion problems due to handling oils high in sulphur content, the disposal of oil field waters, utilization of salvaged material, and safety of the employes in the various departments of the industry.

All of these problems and many others have received the co-operative attention of the several engineering society groups along with special and detailed work by engineers of the Bureau of Mines and committees appointed by the American Petroleum Institute from among its own members.

The list can be continued by adding the problems of natural gas measurement and pipe line flow, open flow capacities of gas wells, various refinery problems, such as the fractionation and chemical treatment of light petroleum distillates, a study of sulphur compounds, specialized work on lubricants, wax and wax distillates, with attention given to the development of continuous topping apparatus, the removal of commercial products from asphalts and amorphous wax and reduction of heating losses during the refining processes.

The above is a very impressive list of things done by the engineers in the industry, but the work still to be done is even more outstanding, and the development of geophysical methods of prospecting employing the torsion balance, magnetometer, geophone and seismograph is making the location of underground bodies of oil and gas more exacting.

Deep Holes and High Temperature

The present drilling methods will be improved to take care of changes caused by deeper holes and higher temperatures and the need for drilling these holes as nearly vertical as possible will be especially considered. Recent regional meetings of the Division of Development and Production Engineering of the American Petroleum Institute clearly show what can be accomplished by concerted action.

With the oil and gas coming from greater depths it is going to be very essential that all production and handling costs be reduced to a minimum and this will present many problems for the economist and engineer dealing with such matters as co-operative or unit methods of operation, spacing of oil wells and improvement of the ultimate recovery from the sands.

This last named subject is itself divided into many parts and the possibility of sinking shafts to the oil bearing strata and actually draining the sands and removing the residues by mining methods is not far distant. Before this is done it is possible that repressuring and water flooding will be resorted to wherever sand conditions permit its practical application.

Other phases of the improved recovery methods must deal with the fundamental factors underlying all production and recovery methods, and a comprehensive study of the physical and chemical properties of crude oil and their relations to increased recovery methods which will include changes in properties due to different repressuring media.

After the oil as been brought above ground storage and transportation problems confront the engineer and in many instances the oils carry excessive sulphur and this induces rapid corrosion of all ferrous metal equipment used in these operations and it is going to be necessary to continue the study already begun until some satisfactory and economical solution of the problem is found.

Much has been done, particularly by the Bureau of Mines engineers, toward definitely outlining the things that should and should not be done in handling oils and gases to prevent excessive evaporation losses. The actual application of these recommendations to field practice is still largely incomplete, but the industry accepts the statements as facts and realizes the importance of conserving the lighter hydrocarbon fractions of the oil, and will therefore set up the agencies needed to bring about the required results for the good of all concerned.

Natural Gas Problems

Natural gas that accompanies the production of oil has long been a problem and it is no longer considered good field practice to permit a well to blow off its head of gas to waste, but what to do with this gas is still something of a problem in some fields, and it has been suggested that it might be returned to porous formations as a means of natural storage methods.

The operation of high pressure gas wells and the making of "open flow" measurements of them is still presenting many problems, and is being studied carefully by the petroleum engineers along with well spacing in natural gas fields.

To transmit natural gas from its source to places where it can be economically used presents many very intricate problems in pipe line engineering dealing with flow in natural gas transmission lines, leakage in these lines, corrosion of the pipes, removal of condensates and the use of portable gas compressors.

After the gas has been developed in large quantities that will permit the transportation of it to distant points with an assured earning on the large sums needed for laying lines and building stations, there are still many unsolved problems that have to do with its distribution to the ultimate consumer such

(Continued on Page 159)

SLIGHT DECLINE IN COMPLETIONS BUT OIL WELLS AVERAGED HIGHER

Field work east of California showed a falling off of 39 in completed wells in May as compared with April, but a gain of 26,424 bbls. in initial daily production and an increase of 26 bbls. per well in average initial production is noted. The dry holes were 33 fewer than in April and the same number of gas wells were completed in the two months.

In new work an increase of 87 in rigs and 59 in drilling wells or a total of 146 operations reported, but the falling off of 39 in completions brings the net increase in new operations down to 107.

The summary follows:

SUMMARY OF ALL FIELDS

WELLS COMPLETED

Field—	Comp.	Prod.	Dry	Gas
Eastern	473	1,489	32	67
Central Ohio	103	672	31	40
Lima	11	74	2	2
Indiana	14	115	8	3
Michigan	45	20,425	8	3
Illinois	14	1,259	4	1
Kentucky	115	3,768	37	6
Tennessee	0	0	0	0
Alabama	1	0	1	0
Mississippi	0	0	0	0
Oklahoma	287	65,509	97	33
Kansas	73	14,216	33	3
Texas Panhandle	45	32,193	8	11
North Central Texas	391	13,516	197	22
East Central Texas	9	21	8	0
West Texas	94	183,988	50	2
Southwest Texas	93	12,551	38	10
East Texas	6	25	0	5
Gulf Coast	126	34,342	46	2
North Louisiana	39	465	16	18
Arkansas	23	692	15	2
Wyoming	3	18	1	0
Montana	24	1,097	3	2
Colorado	11	720	9	0
New Mexico	8	2,466	6	1
Total May	2,008	389,622	651	233
Total April	2,047	363,198	684	233
Difference	39	26,424	33	0

RIGS AND WELLS DRILLING

Field—	Rigs	Drg.	Tl.
Eastern	134	414	548
Central Ohio	88	160	248
Lima	3	26	29
Indiana	7	46	53
Michigan	74	114	188
Illinois	1	21	22
Kentucky	18	208	226
Tennessee	3	13	16
Mississippi	9	18	27
Alabama	1	8	9
Oklahoma	146	724	870
Kansas	60	302	362
Texas Panhandle	44	118	162
Nor.h Central Texas	99	434	533
East Central Texas	0	30	30
West Texas	35	247	282
Southwest Texas	32	190	222
East Texas	4	19	23
Gulf Coast	29	189	218
North Louisiana	33	101	134
Arkansas	12	48	60
Wyoming	25	148	173
Montana	23	102	125
Colorado	17	89	106
New Mexico	42	70	112
Utah	5	27	32
Total May	944	3,866	4,810
Total April	857	3,807	4,664
Difference	87	59	146

Mississippi Magnetometer Readings

Interesting Results from Comparisons of Magnetometer Map with Structure Map of State. Striking Similarities

By L. Spraragen

General Geological Features

Figure No. 4 taken from the Mississippi State Geological Survey Bulletin No. 21 shows a tentative map of the State contoured on the top of the Cretaceous. The following extracts are from Bulletin No. 21:

"The most striking feature is the pronounced terrace-like structure in the north and west quarter of the State ending abruptly to the southeast in a nose-like protuberance in the region of Hinds and Rankin Counties. . . ."

"The abrupt ending of the terrace in Hinds and Rankin is perhaps the most striking feature of the map. In this region the dip becomes very steep at greater depths than 2,600 feet, and instead of the usual dip to the southwest, dips away to the east. This abnormal dip continues as far north as Holmes Country, where again after a sharp turn the normal direction of the dip is resumed. The result is the nose-like protuberance pointing almost due south in Hinds, Rankin, Yazoo and Madison Counties. It is composed of a narrow, gently sloping top which widens to the north and with steeply dipping sides to the east, west and south. . . ."

Figures No. 5 and 6 show two cross sections drawn from plotted well logs. ". . . In the construction of these cross sections the information was so scant that only the larger features can be shown."

"Figure No. 5 shows a section drawn almost due east and west acress the State along the line MM' of Figure No. 4. This section cuts across the top of the Jackson structure, and shows the changes in the dip and thickness of the material on and off the structure. . . ."

"Figure No. 6 shows a cross section northeast and southwest from close to the outcrop of the Cretaceous to the top of the Jackson structure. Until the Jackson structure is reached in Madison County, as indicated by the Trolio No. 1 well, the section crosses the strike of the formations at right angles, and therefore correctly represents the dip. This is not the case on the Jackson structure where, because the strike is intersected at an angle, the dip as shown is less than the actual dip."

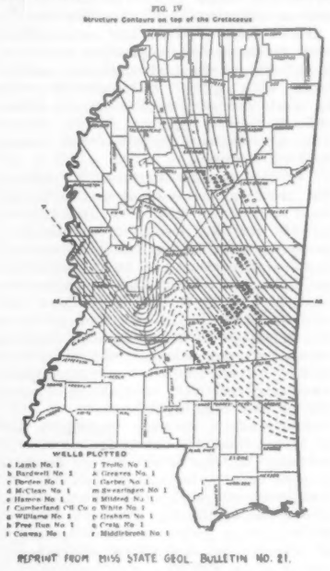


FIG. IV
Structure Contours on top of the Cretaceous
WELLS PLOTTED
a Lamb No. 1
b Bardwell No. 1
c Darden No. 1
d McClean No. 1
e Hamric No. 1
f Cumberland Ctl Co
g Williams No. 2
h Free Run No. 1
i Conway No. 1
j Trollo No. 1
k Greaves No. 1
l Garber No. 1
m Beveridge No. 1
n Mildred No. 1
o White No. 1
p Graham No. 1
q Craig No. 1
r Middlebrook No. 1

REPRINT FROM MISS STATE GEOL. BULLETIN NO. 21.

Interesting Comparisons

It is interesting to compare the magnetometer map with the structure map for the area just described.

Plate 1 shows that in the vicinity of Jackson there is evidence of one of the prominent high magnetic disturbances in the State.

Plate 2 shows that the vicinity of Jackson is magnetically high, the magnetic structure having its axis in a north south direction, dipping off to the east and to the west and broadening out to the north.

Immediately above the two sections Figures No. 5 and 6 are shown the vertical magnetic intensity profiles along the same lines.

Comparing the west to east section with the magnetic profiles brings out the striking similarity of the two for the part of the section from the No. 1 Mildred well to the No. 1 Graham. East of the Graham well the two do not agree.

Comparing the section indicated in Figure No. 6 with the magnetic intensity profile for the same traverse again reveals a striking similarity for the two. From the No. 1 Garber well northeast to the Conway well the two agree remarkably well. Beyond the Conway well the two do not check.

The following references to some areas in Mississippi with structures favorable for oil and gas are taken from the ninth biennial report of the director of the State Geological Survey to the Mississippi Legislature:

The Cincinnati Uplift

"The extensive arching of the Cincinnati anticline passes through central Kentucky and Tennessee into northwestern Alabama and finds expression in the rocks of northeast Mississippi. Only in Tishomingo and Itawamba Counties have the old Paleozoic rocks been found in Mississippi. These are limestone, sandstone and shale beds of the Mississippi or Subcarboniferous representing what are called in Alabama Lauderdale chert, Tuscumbia limestone and Hartselle sandstone."

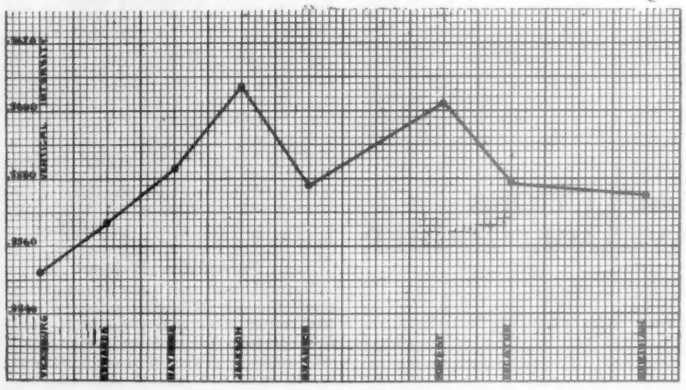
". . . Both limestone and sandstones are often bituminous and in adjacent counties of Tennessee and Alabama oil shows, gas and tar springs are frequent."

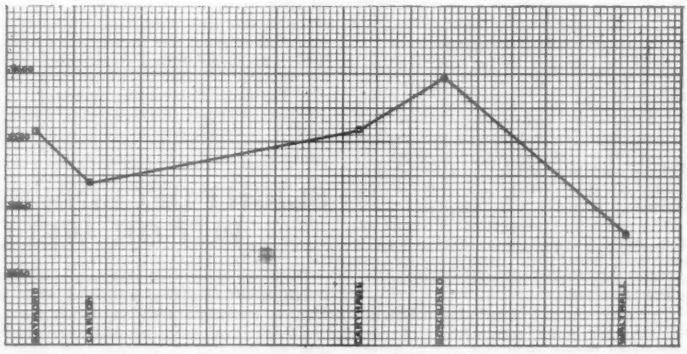
The magnetometer survey, Plate 2, shows that the regions included in Tishomingo and Itawamba Counties are magnetically high.

Corinth

" . . . The natural inference is that a bending or anticlinal ridge is developed somewhere to the west of the observed point, (3½ miles east of Corinth) and Corinth. Such a structure, if verified and outlined by detailed survey of the region, would be favorable structure for oil exploration."

A point 3½ miles east of Corinth would occur on the flanks of the magnetic high at Iuka but would be close to the low at Corinth.





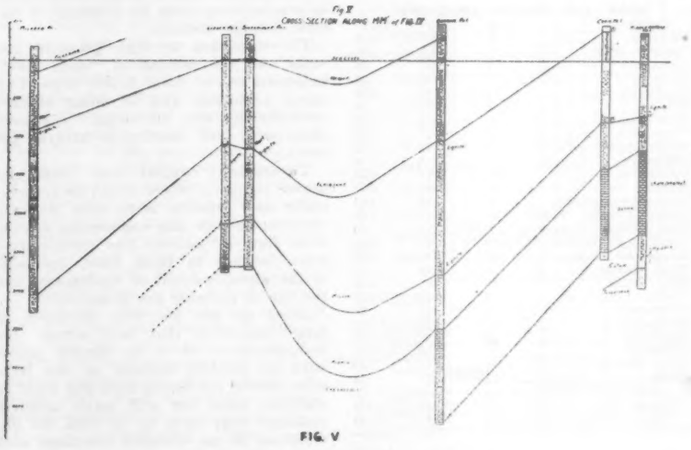


FIG. V

LOWER PART OF THIS FIGURE IS TAKEN FROM BULLETIN 21 MISS. STATE GEOL. SUR.

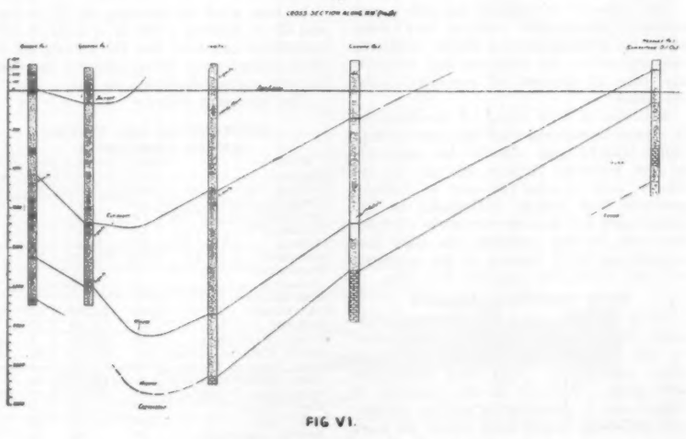


FIG VI.

LOWER PART OF THIS FIGURE IS TAKEN FROM BULLETIN 21 MISS. STATE GEOL. SUR.

The first installment of this article was published May 16; the concluding portion will be published shortly.

Symposium on Straight Hole Methods

W. K. Whiteford Presents Valuable Paper to Engineers at Divisional Meeting. Free Discussion

By L. G. E. Bignell
Petroleum Engineering Editor

W. K. Whiteford, of the Barnsdall Oil Co., and assistant chairman of the Mid-Continent district of the American Petroleum Institute, Division of Development and Production Engineering, compiled the paper on "Straight Hole Practice," which was read at the Wednesday, May 29, session in Tulsa. The paper was made up from the collective views of contractors, operators and manufacturers and at the conclusion of its reading was subjected to a general discussion from the floor. Mr. Whiteford presided at the session and the reading of the paper was assigned to Charles Jacobson, chairman of the Mid-Continent drilling practice committee. It follows as read:

Weight Carried on Bit

The proper weight in pounds per square inch to use in drilling a straight rotary hole, as indicated by the weighing devices now in common usage, has a rather wide range, to judge from the reports received from more than 30 representative drilling contractors. At first thought it may seem strange that so wide a variation between the minimum and maximum recommended weights should exist in the same area. After a little consideration of the obstacles entering into the solution of the problem and a review of the meagerness of our present information it is easier to understand the situation.

First. Recommended weights have been worked out, for the most part by the trial and error method, and enough time has not elapsed or enough data been collected to allow closer limits to be accurately determined. Secondly, the instruments for measuring the weight carried on the bit do not appear to be reliable enough to be sure of the accuracy of the indicated load in terms of pounds per square inch on the bit head. This question is taken up more fully later. Probably, in recognition of this fact, several contractors have indicated the weight they carry on the gauge in terms of "points" rather than pounds. A tabulation of the recommended weights shows a range from minimum to maximum of from 2,000 to 30,000 pounds. However, in checking over the weights carried by contractors, who have drilled the straightest holes, the range would seem to lie between 7,000 pounds per square inch for shale to 12,000 pounds for lime, with the average about 9,000 to 11,000 pounds. These weights, of course, apply to 6-inch drill pipe and are for the most part taken from the greater Seminole area.

It seemed to be almost unanimous that it was advisable to change the indicated weight, when drilling from a soft to a harder formation, or vice versa. The amount of change in weight to be carried varied from 2,000 to 8,000 pounds. Some contractors increased the weight carried in shale over the weight carried in lime while some preferred to carry the greater weight in the lime. Several of the contractors who have a large number of straight holes to their credit recommend taking practically all of the weight off the drill stem upon striking a harder formation until the bit had started a full-gauge, even hole, and was running smoothly, and then slowly increasing the weight to maximum.

The disc, fishtail and special cutter bits should carry less weight than the rock bit. From 2,000 to 5,000 pounds less weight was recommended, with the exception of one contractor, who recommends from 3,000 to 4,000 pounds more on a disc bit than on a rock bit. He has straightened up holes in this way when no other method seemed to work. He accompanied this increase in weight with a rotation of from 60 to 65 revolutions per minute of the rotary table.

Most answers concerning the speed of rotation for a given weight indicated that this factor is considered of major importance in the matter of drilling a straight hole, but also that at the present time we do not have sufficient data to determine just what the relation should be between speed of rotation and the weight carried on the bit. Several expressed the opinion that the solution of the proper ratios between the speed of rotation and the weight carried, drilling through the different formations, would result in higher cutting speeds per unit of time at a less cost per foot, thus increasing the drilling life of our various bits and the drilling of straighter holes.

About half of the contractors increased the weight on the bit as the cones or cutters dulled. It would seem that in the case where the bit head was already carrying the maximum recommended weight that this practice would result in forcing or crowding the bit, thus causing the bit to drill off center. The well surveys of the holes drilled by contractors who do not follow this practice would seem to bear out this idea, as they have drilled the straighter holes.

To use the words of one man who has spent considerable thought and time working on this point, "the best results are obtained, as a rule, by establishing a certain cutting rate per hour, depending on the nature of the formation being drilled, and when the cones become dull to a point where they will not cut this rate of footage without adding more weight, pull the bit out of the hole." The footage cut to the set of cones with this procedure is very close to the average obtained under former conditions when greater weights were carried on the cones. In other words, by using the proper weight the cones will have a better cutting action and cut practically as much hole as in the case where they are crowded.

The speed of rotation recommended in respect to the weight carried on the bit ranged from 35 to 50 revolutions per minute for shale and from 50 to 80 revolutions per minute for lime, 45 to 55 revolutions per minute seemed to be the most favored speeds of rotation. A large number of contractors recommended slower speeds of rotation if the weight carried on the bit is increased. Disc and fishtail bits should rotate faster than should rock bits. The slower speed of

(Continued on Page 167)

CO-OPERATION IN COLLECTION OF DATA

In his closing remarks to the crowd assembled in the Junior Ball Room of the Mayo Hotel on Wednesday, May 29, for the second session of the spring meeting of the Mid-Continent District of the American Petroleum Institute, Division of Development and Production Engineering, Chairman J. R. McWilliams emphasized the satisfaction that he and the other officers of this division felt in the co-operation that had been given them in their efforts to gather data on the two subjects discussed in much detail at the two days' session held in Tulsa, May 28 and 29.

The subjects covered were "Gas Lift Practice at Seminole," which was presented at the afternoon session on Tuesday, and "Straight Hole Practice," discussed at the Wednesday morning meeting.

The method of handling these very timely and important subjects was unique, and productive of good results, as the committee in charge of the Mid-Continent division first sent out questionnaires to those interested and upon receipt of the answers they were compiled into two papers, the one covering "Gas Lift Practice at Seminole" being handled by Mr. McWilliams and the other on "Straight Hole Practice" was compiled by W. K. Whiteford.

Gas Lift Practice in Seminole Field

J. R. McWilliams Presents Collective Thought of Men Engaged in Work. Discussion by Engineers

By L. G. E. Bignell
Petroleum Engineering Editor

The general session of the Mid-Continent District American Petroleum Institute Division of Development and Production Engineering spring meeting was divided into two parts, the first being held in the Crystal Ball Room on the sixteenth floor of the Mayo Hotel, Tulsa, on Tuesday afternoon, May 28, and presided over by Chairman Charles P. Dimit, of the production practice committee of the Mid-Continent district. At this meeting Mr. Dimit presented the paper previously carefully prepared by J. R. McWilliams from answers to questionnaires sent to men interested in the problems of "Gas Lift Practice at Seminole" and covering about 100 direct questions and answers.

The reading of this paper was accompanied by spirited and valuable discussion by the men present and brought out a fund of new and useful information on this important subject.

Because of its length this paper is briefed as presented here.

The first portion of the paper dealt with the selection of compressor plants which is the natural course that should be pursued in working out gas lift problems, and three types of plants were discussed:

Type A—Compressors driven by 2 or 4 cycle gas engines.

Type B—Compressors driven by multicylinder gas engines.

Type C—Compressors driven by electric motors.

The first question asked was what factors would influence or discourage the installation of each type of equipment and the answers were tabulated as follows:

Type A—Advantages:

Low cost operation per horse power, high salvage on machinery, suitable for gasoline plants or repressuring after salvaging, slower speed machines and therefore have longer life, high percentage of running time.

Type A—Disadvantages:

Higher first cost, cost operation higher if fuel gas must be purchased, time required for installation.

Type B—Advantages:

Rapid installation, lower installation cost, portable installation where electrical power not available.

Type B—Disadvantages:

High maintenance cast, low percentage of running time, high speed machines, therefore more rapid depreciation, increased fire hazard in engine rooms.

Type C—Advantages:

Low initial cost, speedy installation, can be erected on timbers, high percentage running time, minimum depreciation, high salvage.

Type C—Disadvantages:

High cost operation account electrical power, usual size motors not suitable for other work economically, no ready sale for equipment.

After establishing the advantages and disadvantages of the different type plants, questions of dependability and economy were discussed and the approximate total cost per horsepower to completely install a gas lift plant of about 1,000 horsepower with no cost incidental to gasoline manufacture only taken into consideration and these averages were obtained from a review of the answers received.

Type A—$89, $90 (2), $95, $100 (5), $103, $110, $160. Average $103.

Type B—$44, $47, $63, $65, $90, $100. Average $68.

Type C—$50, $55, $60, $70 (2), $75, $80, $110. Average $61.

The Type A plant shows an operating cost per horsepower per day of a gas lift plant of about 1,000 horsepower without charge for gas used in plant operation and depreciation of an average of 7 cents while the Type B plant averaged 16 cents and the Type C plants 22 cents, each based upon the same operating conditions as covers the A type plant.

The advantages and disadvantages of a centrally located gas lift plant as compared to several smaller plants located throughout an area are given in the sum-

(Continued on Page 174)

Mohammerah Geological Office Model

American Geologist Surprised To Find It Far Beyond Anything He Expected in Persia. Experiences in Irak

By Frederick G. Clapp*

The city of Mohammerah and the refinery town of Abadan are only 7 miles apart. At Mohammerah I was a guest in the house of T. Livingston Jacks, general manager of Anglo-Persian Oil Co., then absent in Teheran, and Messrs. Clegg and Capel-Dunn acted as hosts. During the ensuing few days much time was spent with the company's principal geologist, Mr. Mayo, and many visits were made in Mohammerah and Abadan under the auspices of E. H. O. Elkington, assistant general manager and his staff.

On these busy April days the principal objects of interest in connection with the refinery, tank farm and oil shipping facilities, including the prosperous town of Abadan that has been built up about them, were investigated under expert guidance. Little was missed, from the top of one of the oil storage tanks to the engine room of a tanker. Even the up-to-date fire department (of which the company is justly proud) was given a false alarm to enable it to display its prowess before the American engineer or Persian official (in whichever class my indulgent guides may have placed me).

Naturally the political problems came in for some discussion. One remarkable fact is that—although Abadan Island is Persian territory—it is bounded on the southwest by the (river) Shattel-Arab, and the Iraq boundary does not conform to the middle of the river but it follows the Persian shore line. Consequently, although the town and all of the land facilities are situated in Persia, the tankers lie in Iraq while taking on oil for their long voyages to England, Australia and elsewhere. This fact has caused much controversy in regard to port formalities and it is merely one of the many abnormal features of Persian political geography that ought to be remedied by international agreement for the welfare of all parties concerned.

The Mohammerah geological office turned out to be far beyond anything I had expected to find in Persia. It would be worthy of a place in an American oil town and is the sort of place in which any man of the profession would enjoy camping for a year or two while studying maps, sections, specimens, samples and records, thereby solving many of the field problems and leading on towards the solution of an endless chain of new ones. The enthusiasm of Mr. Mayo for the establishment which he and his assistants have built up on behalf of their company is well merited.

Six days at Mohammerah lengthened into seven when I yielded to entreaties to remain over Sunday; but early on Monday morning, April 23, an automobile was bound for Basra, 20 miles distant in Iraq. Unless a traveler is in sufficient hurry to go by airplane the route across Iraq is generally resorted to in any journey between Teheran and the southwestern oil fields, for the mountains that intervene between Masjid-i-Suleiman and Isfahan are dangerous and are passable with difficulty on muleback, while the direct highway via Khoramabad had not been opened at the time of my journey. Within a few days of this time the Persian minister of public works, Gen. Ameer Lashgar Abdullah Khan Tahmasabi, with whom I happened to be directly associated in my work—was unfortunately killed by Lurs while he was on an inspection trip with military protection in an effort to put through the new motor highway which had been ordered by the Shah for connecting Khoramabad with Disful.

On account of seemingly endless formalities involved in transporting a Persian owned automobile across Iraq, my men were sent back to Teheran by way of Ganawah and Shiraz, while I merely took a Secretary and a personal servant through Iraq. Agha Jan had carefully condensed a few of my necessities into one box, while hours had been spent by Amir Shah in getting passports and visas into shape to suit the red tape of the two nations. Consequently I was relieved when the car which was now furnished me had crossed the international boundary line and I was in Iraq for the second time. We crossed the Shatt-el-Arab into Basra, entered another waiting car, and a hot scenic trip was made into the desert in company with three geologists. The same night, back in a river bank suburb of Basra, I took final leave of my genial companions and accepted the invitation of the hospitable British representative of the Khanaqin Oil Co. to sleep at his house.

The next day was to be my second, but not last, experience with Iraq railways, for at 7 o'clock Amir Shah and I were shut into a so-called "first-class" compartment and had commenced the 350-mile or longer journey to Bagdad. Having heard of the terrific heat of Mesopotamia and having experienced some of it at Masjid-i-Suleiman and Mohammerah, I was nevertheless astonished to find a shade temperature of 118 degrees Fahrenheit on the Bagdad train.

During that day one of the many fabled sites of the Garden of Eden was passed, and, from the nature of the climate, we might infer that the real reason why Adam and Eve left the garden was in order to get away from the mosquitos. The historic mound of Ur of the Chaldees, where Abraham was born, was passed within 4 miles of the railroad, and thoughts turned to the relics of former millenniums recently discovered there by the joint expedition of the University of Pennsylvania and the British Museum. The great Euphrates plain was crossed for the entire distance, including both the irrigated and nonirrigated phases, the contrast between which actually demonstrates the vast benefits to be derived from future irrigation in both the Iraqi and Persian portions of Mesopotamia if efficiently undertaken. The next day the train pulled into Bagdad, where I. M. Jones, acting manager of the Khanaqin Oil Co., met me and the delicious ice creams of the Waverly Hotel were soon being relished.

Proximity to the oil fields did not prevent a visit to the ruins of Babylon the next day in company with E. T. Kerr of Khanaqin Oil Co. The drive was a long hot one, but lunch was finally eaten in a date grove near the ancient quays on the Euphrates. The wide expanse of monotonous yellowish-gray mounds that constitute the ruins of this city, which was a metropolis 4,000 years ago, caused food for thought, but the locality was difficult to photograph satisfactorily.

On the way to and from Babylon, at Museyib and Hilla, some of the peculiar shaped boats, plastered with bitumen from Hit, were photographed, by both kodak and cinema, as they floated across the Euphrates in its flood stage. My secretary had asked for a day off in which to visit Kerbela—the shrine of his religion in Central Iraq—after which he would have a right to the title of "hodgi."

I called on the American Consul General John Randolph—and other friends, explored the oriental bazaars and the book shop (said to be the largest in Asia), and a night's ride on the train brought me to Tuz-khurmatti, where the Turkish Petroleum Co. has established its headquarters for a long drilling campaign.

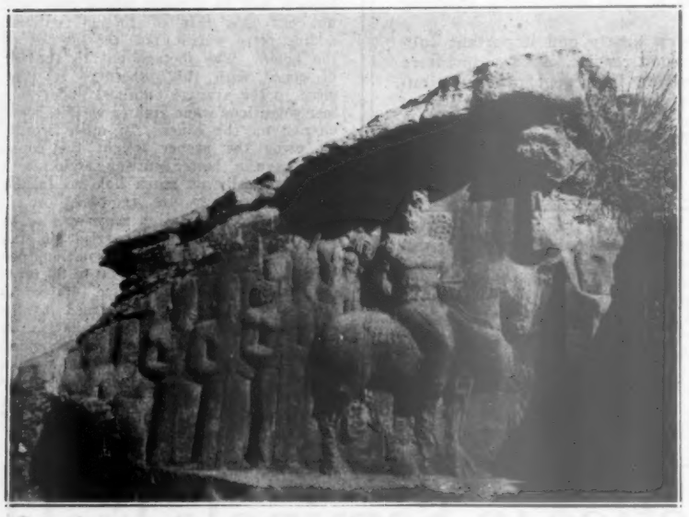
If any doubts had existed as to the cordiality of my reception by the Iraqi government or by the Turkish Petroleum Co., they would have vanished as I stepped from the train one Sunday morning and was greeted by L. V. A. Fowle—geologist in charge—and when, shortly thereafter by Mr. Bull, general manager, to stay at his house while in the vicinity. Thus, the visit to the fields of another company proved entirely agreeable, and I could not have been more hospitably entertained had I encountered a group of life-long friends in Tulsa or Los Angeles.

It is important to bear in mind the fact that distances are great in these Mesopotamian oil fields. The Tuz-Khumatti lies 100 miles due north of Bagdad, 125 miles southeast of Mosul, 65 miles northwest of Haft-Khaneh (the nearest Persian oil field) and 330 miles northwest of Masjid-i-Suleiman. What a wonderful possibility this perspective opens up for the three companies which have concessions and are operating this region.

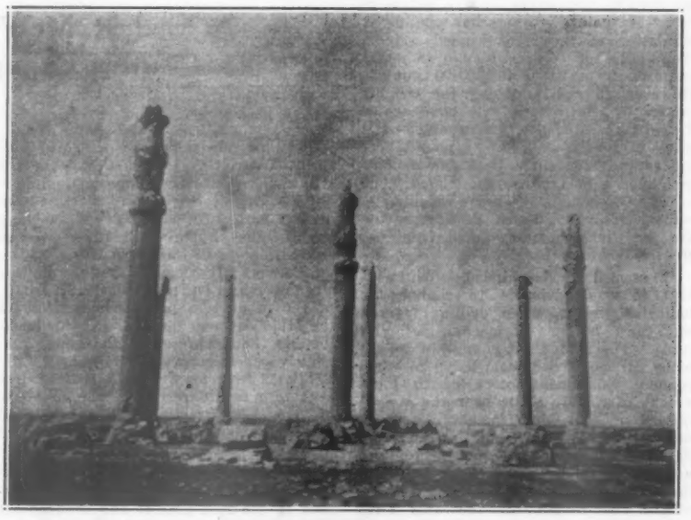
As usual, my time was limited, for it was needed by the Persian government in other fields; but the few days' visit in northern Iraq furnished a glimpse of the Baba-Gurgur gusher, several miles north of Kerkuk, which is credited with having had a production of from 70,000 to 95,000 bbls. daily before being shut in. Other and prospective fields were visited in company with Mr. Fowle and his assistants; and the complicated geology of the Lower, Middle and Upper Fars and Lower and Upper Bakhtiari series of strata was studied with interest. As the oil in northern Iraq occurs in a great limestone which appears to be of Oligocene or Lower Miocene age, it is doubtless to be correlated with the Asmari limestone of Masjid-i-Suleiman.

The immense anticlinal folds, the broad cynclinal troughs, the faults and overthrusts, in these fields are as interesting and instructive as they are in Persia. The intraformational movement

(Continued on Page 159)



Sassanian sculptures at Naksh-i-Rejab, 2 miles from Perseopolis.



Ruins of the palace of Xerxes, Perseopolis.

*Consulting Petroleum Engineer, 50 Church Street, New York City, and 68 Quai d'Auteuil, Paris XVI, France—Fourth article.

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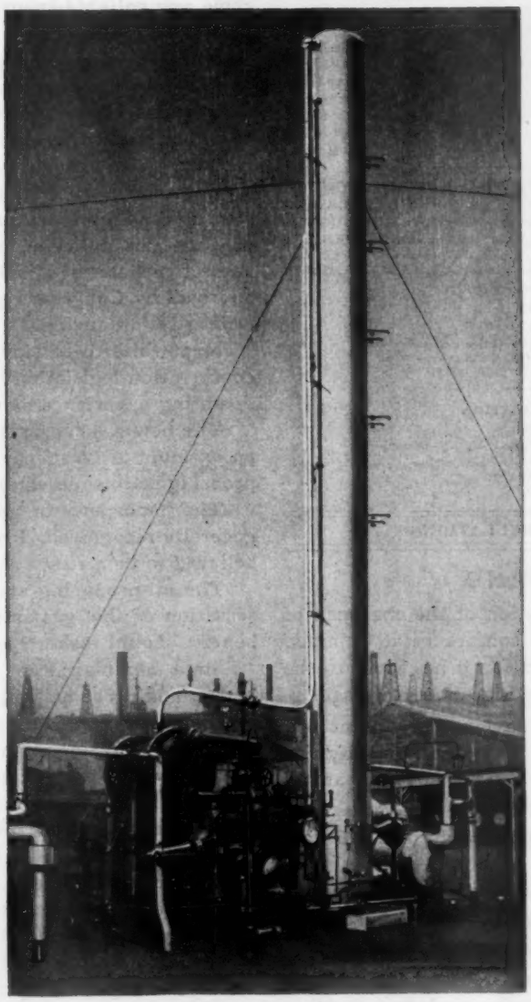

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WITH AN OPEN MIND

The oil industry has accepted the invitation of the chairman of the Federal Oil Conservation Board to the conference at Colorado Springs with the same spirit of full co-operation it has given to the board since it was created by President Coolidge five years ago.

The responsible leaders of the industry are in thorough accord with the representatives of the Government on the necessity for conservation of our petroleum resources, as they have been all along.

None realizes more than those in the industry that there is as much need for conservation now as ever. Only the uninformed misinterpret the recent price changes which were due to local and temporary conditions and did not reflect the general situation.

Those who think only of the Mid-Continent position and disregard California are merely deluding themselves.

What happened in 1923 may easily be repeated and the markets east of the mountains may again be dominated by crude and gasoline shipped from the Pacific Coast.

There can be no genuine conservation of oil so long as there is overproduction, no stabilization in the industry while the threat of overproduction remains.

The interests of the industry in the conservation of its raw material and the stabilization of its products are at one with the interest of the Government in the preservation of our oil supply.

Public and private interests meet in the demand for a program of conservation that will work.

The industry, through its representative organization, the American Petroleum Institute, has declared itself in a receptive mood and will await the discussions at Colorado Springs with an open mind.

The official call for the meeting styles it "a preliminary conference to discuss the general principles of oil conservation" and asks for suggestions on "a constructive program, or the development of a state compact to bring about the elimination of waste."

Chairman Wilbur in an interview has amplified this by the statement that "the plan of the meeting is to discuss general principles rather than a specific interstate compact," and "hopes that out of the conference some satisfactory plan may arise."

The industry welcomes this definition as assuring there will be no disposition to put forward any prearranged program and that principles will be given precedence.

It is not to be supposed that if the industry has not been able after five years of practical effort to evolve a satisfactory solution that any plan can be made to order that will be satisfactory or successful.

In the discussion of principles the industry is best qualified by actual knowledge and experience to contribute most effectively. It knows what is needed to be done to conserve our oil and will welcome any enlightenment or assistance that may be forthcoming on how to go about getting it done.

The idea of a compact between oil-producing states, subject to approval by Congress, is not new. It was mentioned among other suggestions in the first report of the Federal Oil Board issued in 1926, and signed by Secretaries Work, Davis, C. D. Wilbur and Hoover.

Determination of its legality must, of course, await actual decision by the Supreme Court, but the more immediate question is the practical possibility of securing adoption of such a compact by the respective states and, if that were attained, the necessary subsequent approval by Congress representing all the states, oil-consuming as well as oil-producing.

Meanwhile there may be discussion of the possible adoption of conservation legislation by each oil-producing state based upon the operating experience of the industry.

The new gas conservation law in California has been offered as an example of what may be accomplished in that respect and will probably be considered at Colorado Springs.

The importance of gas in the recovery of oil is now fully and generally recognized. Prevention of avoidable waste of gas is today believed to be a first step towards any conservation of oil.

The oil-producing states are as directly interested in the conservation of this gas as the industry itself. Common purpose and benefit should make their co-operation natural, properly directed.

State administrations in the past few years have shown a new understanding of helpful interest in the operations of the industry based on a new realization of mutual dependence. If the conference at Colorado Springs can broaden and intensify this co-operating spirit it will be a big step forward.

The oil industry needs a helping hand, not a straightjacket.

The theory of unit development, which is making progress in application, is another step towards conservation to be considered.

Modification of lease forms to fit a constructive conservation policy is already engaging the attention of oil company counsel.

It may be found easier and wiser to adjust laws and practices to economic conditions than to try to mold economic conditions to fit out-of-date legal conceptions and customs.

The contributing causes of overproduction are well known. The direct way would be to tackle these causes rather than attempt to limit their effects.

All these considerations suggest that the preliminary conference at Colorado Springs will do well to devote its attention chiefly to general principles before endeavoring to provide a panacea.

In other words, to make a thorough diagnosis before prescribing a dose.

The greatest service which the Federal Oil Conservation Board has rendered in its nearly five years of existence has been the thorough ventilation of the subject afforded by its hearings and activities.

It has provided the oil industry with a hearing before the country that could not have been obtained in any other way.

As a result the whole attitude of states and the public towards the industry has been altered for the better.

The public, following the Government's lead, has taken to considering the industry's position dispassionately as an economic problem in which the whole nation is interested.

The same attitude is being shown towards the coming conference at Colorado Springs with the hope that out of that meeting something practical may be evolved that may pave the way towards a solution.

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Analyses in Oil Absorption Operation

Application of Fundamental Data of Practical Value in Plant Control. Need of Additional Investigation

By W. W. Robinson, Jr.
The Texas Company (A California Corp.)*

The theoretical mathematical treatment and physical chemistry of absorption has been presented to the natural gasoline industry, through various trade and scientific journals, at intervals during the past five years. This subject has always been received with interest by engineers, research workers and those who have considerable everyday contact with mathematics, and the rules and methods of physical chemistry.

However, a considerable majority are invariably disappointed. Many authors assume their readers to be familiar with the nomenclature of physical chemistry, and the intricacies of mathematical treatment, and often leave so much technical material to the imagination that the operator, control chemist or routine engineer are not materially assisted without recourse to a review of an academic nature. In fact, many engaged in the commercial administration of the absorption process are compelled to continue their activities unassisted by theoretical knowledge, applicable in a practical manner to problems whose proper solution would have considerable to do with improving plant conditions; reveal the behavior of faulty equipment, and result in increased extraction efficency.

In the preparation of this paper, the authors deemed it imperative that it be organized in such a manner that the technology be presented with no gaps for imaginative speculation, with hopes that such a presentation will stimulate others to treat future subjects involving the use of mathematics and physical chemistry with more simplicity and completeness.

Mathematics and physical cehmistry can not be made easy, but they can be made plain.

The somewhat elementary manner in presenting this subject is for the benefit of those mentioned. It is felt that for others, who may be entirely familiar with the material contained herein, the paper will constitute an interesting review of the subject, and possibly present another viewpoint of a question which is of mutual concern.

It is with this definite object, then, that the following is presented. It should be firmly borne in mind that it is imperfect and incomplete, and that many questions remain unanswered. But, as a whole, it is something tangible which may be handled by those with an average knowledge of mathematics and laboratory means for making the analyses herein described.

The first portion of the paper deals with the physical chemistry and mathematics of some concepts applied to absorption. The second portion deals with practical applications of this technology.

Part 1—Paraffin Hydrocarbons

These substances are composed of the elements carbon and hydrogen united in different proportions, hence are termed "hydrocarbons." The list presented here represents approximately, those occurring in natural gas. The pentane, hexane and heavier fractions are included, to considerable extent, in petroleum products.

They are called paraffins because of their chemical inertness. The name "paraffin" originating from the Latin "parum" (meaning little), and "affinis" (meaning affinity).

A series of compounds such as this, containing the same elements, carbon and hydrogen and possessing similar chemical properties, but differing mainly in physical characters and exhibiting a constant increment of CH_2, between successive members, is known as a homologous series.

In Table 1, it will be noted that there appear two substances namely: "Iso"-butane, and "iso"-pentane which are spoken of a good deal, particularly isobutane. These two substances have the same molecular formula as their respective neighbors of the same name; i.e., butane and pentane.

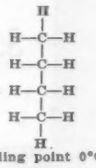
In explanation, the "iso" compounds may be stated as being substances composed of the same elements, and with the same quantity of each element, but differing in the manner in which they are arranged internally.

Column 1, Table 1, shows what is called a molecular formula, which indicates the number of atoms in one molecule of each substance listed. It will be noted that iso-butane and butane have the same molecular formula of C_4H_{10}. This reveals nothing.

Mode of Arrangement

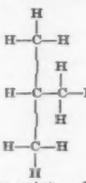
If we provide some formula to show the difference between these compounds, in structure, the "iso" compound may be made to stand out. This may be done by supposing the atoms of the compound to be linked together by bonds in such a manner that this linking can be represented by a structural formula which may be defined as the formula that denotes the mode of arrangement of the atoms of a molecule.

The structural formula, or mode of atom arrangement for butane is:



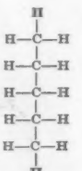
Boiling point 0°C.

The structural formula, or mode of atom arrangement for iso-butane is:

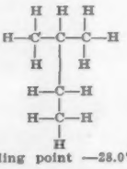


Boiling point —10°C.

For normal and iso-pentane, we would have:



Boiling point —36.3°C.



Boiling point —28.0°C.

Hydrocarbons Discussed

The hydrocarbons prominent in discussions of natural gas and gasoline are: Iso-butane, butane, iso-pentane, pentane. The first two will be mentioned frequently hereafter.

Throughout this discussion, the hydrocarbons heavier than butane will be spoken of as pentanes plus, whereas above pentanes plus, they will be spoken of individually.

The Mol—In forming a concrete and lasting concept of what a "mol" is, let us begin by discarding all ideas to the effect that it is something very "technical."

By definition, a molecule (not a mol) is the smallest part of a pure substance.

As given under paraffin hydrocarbons, the formula for methane is CH_4; ethane C_2H_6; propane C_3H_8, etc., this means that the formulae CH_4; C_2H_6, and C_3H_8 are those for one molecule of methane, ethane, and propane, respectively. The C in these formulae stands for carbon, and the H for hydrogen. The carbon in methane is spoken of as an atom of carbon; in ethane as two atoms of carbon (note small subscript 2 as denoting this for ethane), and so on, increasing in number for the higher members. The hydrogen acts similar to carbon only there are more of them in methane (4 hydrogen atoms); ethane (6 hydrogen atoms); and so on, up the line.

Each chemical element has a value called its atomic weight. These are constant values and will be of assistance if

(Continued on Page 182)

CONCLUSIONS AS TO VALUE OF ANALYSES

The application of these equations leave much to be desired. It should be understood that they are not presented as anything final. All calculations made by the use of them do not turn out satisfactory. But they do present an interesting and simple way of converting observed operating conditions into values which help greatly in forming an intelligent estimate of the behavior of an absorption tower.

A great deal of prejudice exists around the use of formulae of this nature because calculated results do not agree with practical observations. As a result, many have relegated then to the library shelf as being too theoretical.

The authors feel that existing formulae, do not give a completely satisfactory answer to the question. Whether unaccountable discrepancies in their use are due to theory, or the way operating conditions are observed, and samples taken for analysis remain to be solved.

Fundamental analysis has opened a big field for engineering research. Absorpiton equations should be taken off the shelf and criticized in the light of more accurate information concerning the composition of natural gas.

The great need now is for an accurate and rapid method of fundamental analysis of lean and rich absorption oil through octane, at least.

It is felt that a study should be made of the effect of pentane left in the lean oil by the still.

The effect of the absorption oil itself, whether kerosene stock, gas oil, or heavier, on absorption should receive consideration.

It will be noted that the formulae presented here act pretty well for oil rates up to about 30:1. Higher rates seem to distort things. This may be due to an upsetting of the equilibrium within the tower.

A thorough study of all factors in a practical way will undoubtedly result in equations which may be more fool-proof, if not completely so.

A number of questionnaires have been given to various operating companies in California with the idea of obtaining a mass of data with which to prove, disprove, or modify the formulae presented here. The presentation of the finding by Messrs. Cox and Arnold has been mentioned above.

Some concerns claim that if lean oil is stripped to 6.0 mm. absolute vapor pressure at 80 degrees Fahrenheit, no pentane will be found in the dry gas. Just how this is arrived at, and how the oil-gas ratio is estimated to produce this for a given gas is not known.

Some equipment manufacturers claim that their absorption towers are constructed to exercise a fractionating effect for certain constituents. Just how this is accomplished, and what the mathematical statement of such an absorption cycle is, and the quantitative proof seems to be relatively unknown.

The organization of this subject has impressed the authors with a pertinent fact. Namely: that the natural gasoline industry is badly in need of a standard set of symbols for engineering and chemical calculations. Every author seems to have his own nomeclature. This practice is a source of confusion to many, and will continue to be until we all speak in the same terms.

It is sincerely hoped that this paper will stimulate the intensive application of scientific methods to plant control. Let us subject supposedly traditional engineering theories, and formulae to a severe criticism in the light of fundamental analysis. Not only to absorbers, but rectifiers and stills as well. There is a tremendous amount to be learned. It can be done only by untiring co-operative experimentation, study and discussion.

TABLE 1

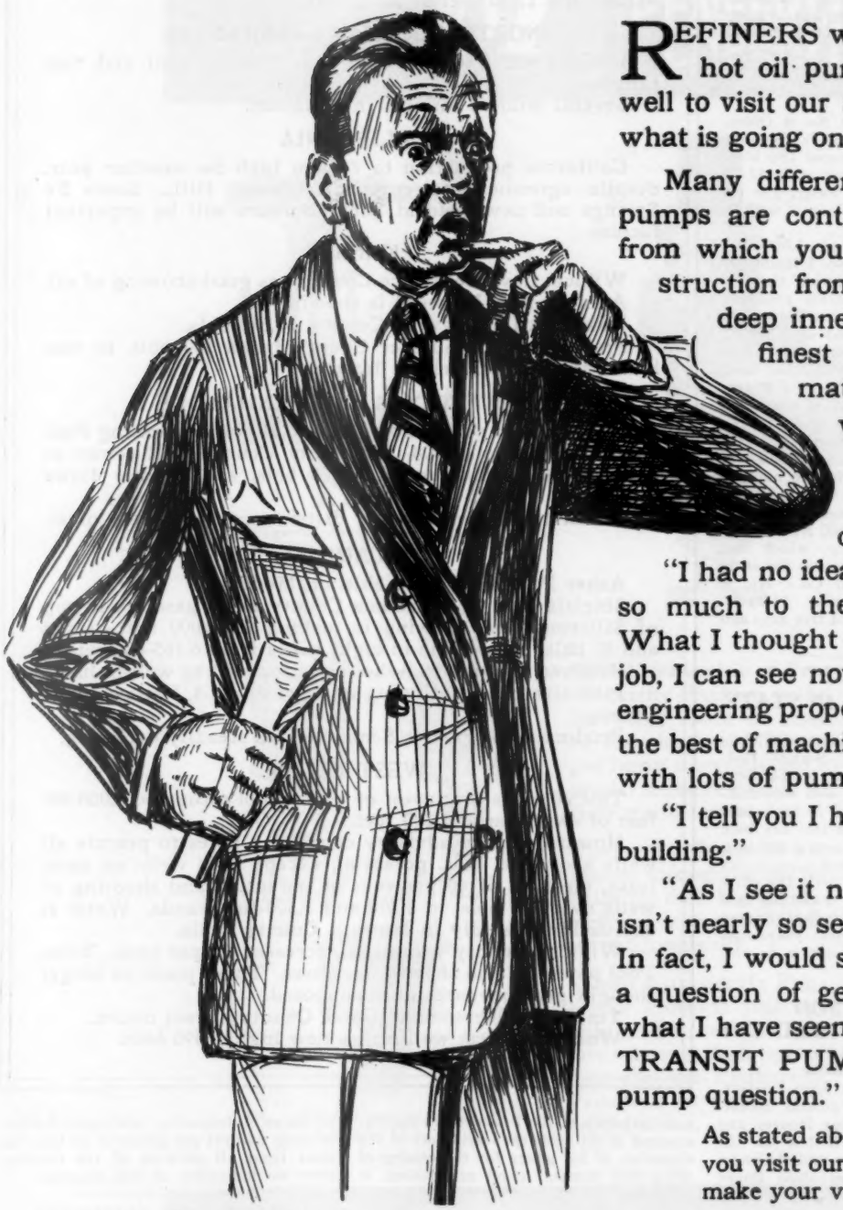
Name— Column—	Molecular formula 1	Per cent carbon 2	Per cent hydrogen 3	Molecular weight 4	Sp. gr. @ 60°F. water: 1 5
Methane	CH_4	74.97	25.03	16.0	....
Ethane	C_2H_6	79.96	20.04	30.0	....
Propane	C_3H_8	81.80	18.20	44.0	0.509
Iso-Butane	C_4H_{10}	82.80	17.20	58.0	0.569
Butane	C_4H_{10}	82.80	17.20	58.0	0.584
Iso-Pentane	C_5H_{12}	83.30	16.70	72.0	0.625
N-Pentane	C_5H_{12}	83.30	16.70	72.0	0.631
N-Hexane	C_6H_{14}	83.70	16.30	86.0	0.664
N-Heptane	C_7H_{16}	84.00	16.00	100.0	0.690
N-Octane	C_8H_{18}	84.20	15.80	114.0	0.706
N-Nonane	C_9H_{20}	84.40	15.60	128.0	*0.718

*20 degrees Centigrade.

*In the preparation of this paper, read before the Natural Gasoline Association of America, Tulsa, by Mr. Robinson, he was assisted by P. S. Magruder, General Petroleum Corp.; J. C. Burks, O. C. Field Gasoline Co.; E. R. Cox, The Texas Company (a California corporation).

E. R. Cox, together with M. L. Arnold of the Richfield Oil Co. will present a paper on this subject at an early meeting of the California Natural Gasoline Association. It will deal with further practical applications of the technology present herein; data for which paper is being obtained at this time.

"I Had No Idea"



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St. Louis, Mo.

Late News from the Field

OKLAHOMA

The production of the Greater Seminole area is steadily declining as shown by the gauges from that field which are listed by days for the past week as follows:

Date	Area	Bbls.	Wells
May 28	Seminole-St. Louis	389,948	1,929
May 29	Seminole-St. Louis	387,530	1,932
May 30	Seminole-St. Louis	386,581	1,934
May 31	Seminole-St. Louis	379,855	1,934
June 1	Seminole-St. Louis	381,884	1,934
June 2	Seminole-St. Louis	379,711	1,931
June 3	Seminole-St. Louis	378,462	1,931

The production of the discovery well in the Oklahoma City Pool owned by the Indian Territory Illuminating Oil Co., No. 1 fee, C SE SE Section 24-11-3w, Oklahoma County, was 2,555 bbls. of oil and 435 bbls. of water, according to the gauge of June 3.

Sinclair Oil & Gas Co.'s No. 1 Stamper, NE SW NW Section 30-11-2w, Oklahoma County, is drilling ahead in Siliceous lime at 6,243 feet, having found a small showing of gas at 6,215 feet.

Shaffer Oil & Refining Co. and Irwin & Martin and others' No. 1 Kelly, SE NE NE Section 2-7-4, Pottawatomie County, flowed 1,465 bbls. on the gauge taken June 4, after having been deepened, making the total depth 3,789 feet.

Independent Oil & Gas Co.'s No. 2 Barrows, NW cor. Section 1-7-4, Pottawatomie County, on the gauge of June 4, flowed 1,353 bbls.

Gypsy Oil Co.'s No. 1 Green, NW NW SE Section 17-7-4, Pottawatomie County, swabbed 255 bbls. in six hours on June 4, total depth 3,886 feet.

Magnolia Petroleum Corp.'s No. 1 Hubanks, SW SE NW Section 17-7-4, Pottawatomie County, swabbed 304 bbls. on Tuesday of this week, from the Simpson lime at 4,150-59 feet.

The production of the discovery well at Asher is slowly declining. It is the Simms Oil Co.'s No. 1 Laster, SE NE NE Section 19-6-4, Pottawatomie County. It produced 2,710 bbls. on gas lift, from the gauge of June 4. The Prairie Oil & Gas Co. and Tom Slick Oil Co.'s two wells in the S half NE Section 19-6-4 gauged 5,160 bbls.

The first well to have been shot in the Viola lime in the Asher Pool was Tom Slick Oil Co.'s No. 1 Bledsoe, NW SW NW Section 20-6-4. It was making 900 bbls. a day previous to the shot, but it had not made any oil following the shot up to last report. The reason is not known.

WEST TEXAS

FORT WORTH, Tex., June 4.—In Midland County Phillips' No. 1 Stokes, northeast part of S. Beall Survey, No. 101, fishing two strings of tools at 3,915 feet, is making one-quarter bailer of water at 3,765-73 feet with approximately 100 feet of fluid in the hole and a little free oil, black and heavy, coming from 3,915 feet. Eight-inch casing was set at 3,175 feet.

In Pecos County, Phillips' No. 1 Pryor shut down at 1,442 feet in anhydrite is bailing oil which is coming from behind the 10-inch casing set at 1,410 feet. Taylor Link's No. 1 University, SW cor., Section 30, Block 16, Pecos County, shut down at 1,210 feet, encountered 250,000 feet of dry sweet gas at 1,195-1,204 feet.

Gulf Production Co.'s No. 7 Wadell, a semi-wildcat in Crane County, Section 10, Block B-23, 2 miles north of other Waddell producers, is reported making 1,000,000 feet of gas from brown lime at 2,973 feet.

GULF COAST

HOUSTON, Tex., June 4.—Mills Bennett Production Co. Tuesday was completing two wells at Barbers Hill. Its No. 2 Smith was estimated flowing 1,000 bbls. daily from the sand at 5,195 feet. Its No. 1 Hamman Armstrong was still cleaning itself and with the wash water at noon was making an estimated 700 bbls. of oil daily. The former is a workover, the previous production having been lost when another test drilled into it caving the hole.

Navarro Oil Co. and Texas Exploration Co.'s No. 15 Dolley at Pierce Junction was brought in Monday flowing 1,000 bbls. daily at 4,484 feet.

CALIFORNIA

LOS ANGELES, Calif., June 4.—The Richfield Oil Co. opened up a new deep sand in the Rincon Field of Ventura County when its No. 1 Hobson came in under natural flow doing 800 bbls. of clean 35 gravity oil daily from 7,449 feet. Approximately 150 feet of oil sand has been discovered in this new producer. Completion of No. 1 Hobson will result in early competitive drilling due to present unfavorable condition of producing wells and proximity of rigs.

KANSAS

Prairie Oil & Gas Co.'s No. 4 Olsen, NW NE NW, Section 3-35-2e, Sumner County, in an old area, flowed 180 bbls. in two hours from the chat at 3,447-75 feet, with only a trace of water. The oil is 42 gravity. This is the largest well to produce on the lease.

Bu-Vi-Bar and others have 1,500 feet of oil in the hole in their No. 1 Rothfuss, NE, Section 7-26-1e, Sedgwick County. The well is the most easterly producer in the Valley Center Pool, it filled up almost at once from the chat at 3,390-91 feet. The owners are preparing to swab the well and give it a production test.

The Gypsy Oil Co. and the Shell Petroleum Corp. in the interest of conservation have pinched in their wells in the new Greenwich Pool in Sections 14-15-26-2e, Sedgwick County, Kansas, to 100 bbls. a day, to be effective at once for an indefinite period. The wells included consist of the Shell Petroleum Corp.'s No. 1 Lygrisse, in SE NE Section 15-26-2e, Sedgwick County, which has been averaging 1,900 bbls. a day for some time, and the Gypsy Oil Co.'s No. 1 Hamant, SW NW Section 14-26-2e, Sedgwick County, completed five days ago for 1,777 bbls. a day.

I.T.I.O. HAS DEEPEST DRILLING WELL IN STATE

Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW, Section 10-1-11, Coal County, Oklahoma, is the deepest well in the State. The well was drilling at 7,305 feet on June 3 in blue shale with nothing showing. The test has been in the same formation for over 5,300 feet, with no sign of the Cromwell sand or any of the other markers yet. It is the opinion of some that the well is drilling in a fault. The Oklahoma Geological Survey mapped the structure several years ago. From a geological standpoint it is also the deepest well.

GOVERNOR EMERSON SEES THE PRESIDENT

By Charles E. Kern

WASHINGTON, D. C., June 1.—Gov. Frank C. Emerson of Wyoming recently conferred with President Hoover and Secretary Ray Lyman Wilbur of the Department of the Interior and chairman of the Federal Oil Conservation Board concerning the President's policy for conservation of oil on the public domain.

Governor Emerson represents that group of western governors who are protesting against the regulations for closing the government domain for oil exploration and exploitation.

Governor Emerson is a practical engineer and is especially well qualified to discuss all questions in relation to oil production as well as legal aspects.

The subcommittee of the Judiciary Committee of the Senate to which was referred Senate Resolution 17 introduced by Senator King of Utah authorizing the Committee on the Judiciary to make a complete investigation as to the power and authority of the President to modify, suspend or set aside the leasing act in the execution of his policy for the closing of the public domain to oil exploration, is preparing an adverse report.

HELIUM DISCOVERY REPORTED

WASHINGTON, D. C., June 1.—The richest helium-bearing natural gas field that has been discovered is reported by the Helium Co. of Louisville, Ky. It is stated that this natural gas contains 7.07 helium content over an area of 15,000 acres in the Sinbad helium area in Utah. The Amarillo Field of Texas, from which the Government is extracting helium supplies natural gas which gives only 1.75 per cent content of helium.

The foregoing statement is being investigated by the United States Bureau of Mines. Information concerning helium-bearing natural gas gathered by that bureau from all sections of the country, gives no indication of this discovery.

PRAIRIE P. L. SHIPMENTS

Prairie Pipe Line Co. shipments of crude oil in May totaled 6,098,711 bbls., a daily average of 196,733 bbls. The same company's April shipments were 5,952,637 bbls., a daily average of 198,421 bbls.

PRAIRIE'S SUMMER HOURS

The Prairie Oil & Gas Co.'s summer office hours in all its offices in Kansas, Oklahoma and Texas will be from 7:30 a.m. until 4:30 p.m., excepting Saturday when they will be from 7:30 to 11:30 a.m.

High Spots in Field News

SOUTHWEST TEXAS

Carolina-Texas Pool extended half mile.

New territory opened in Zapata County.

GULF COAST

Yount Lee Oil Co. gets 5,000-bbl. producer in old Jennings Pool at record depth on coast, 7,288 feet.

New deep sand at Blue Ridge.

NEW MEXICO

Three Lea County wells showing water. Skelly company's Jal well makes 850 bbls. natural. Vacuum company's wildcat has 1,100 feet of oil in hole.

NORTH LOUISIANA—ARKANSAS

Dixie Pool, Caddo Parish, has 400-bbl. well and two failures.

Several wildcat failures in Arkansas.

CALIFORNIA

California production to remain high for another year, despite agreement to curtail Kettleman Hills. Santa Fe Springs and new field at Santa Barbara will be important factors.

KANSAS

Wildcat in western Rice County has good showing of oil.

Another near Halstead is showing oil.

New peak in Sedgwick County, 35,513 bbls.

Prairie well in Sumner County flows 180 bbls. in two hours, the largest well on lease.

NORTH TEXAS AND PANHANDLE

Gray County production gains 16,549 bbls., swelling Panhandle output to 81,308. One Gray County well comes in with initial production of 14,275 bbls. and another flows 5,008 bbls.

Wichita Falls and Ranger districts comparatively quiet.

OKLAHOMA

Asher Pool made 8,770 bbls. on Monday.

Sinclair well in Oklahoma County made gasoline in top of Siliceous lime, blowing in making 8,000,000 feet of gas and 87 bbls. of gasoline in eight hours from 6,165-68 feet.

Believed by June 15 Asher situation will be well in hand.

Intensive play continuing in Township 7-4, Pottawatomie County.

Production of greater Seminole area steadily declining.

WEST TEXAS

Test 20 miles southwest of Yates Pool estimated 3,000,000 feet of sweet gas at 1,320 feet.

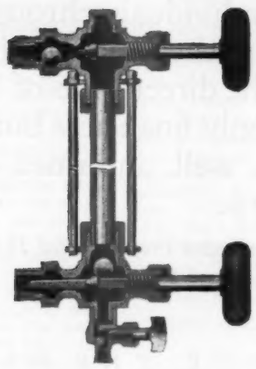
Howard County advisory committee votes to prorate all wells above 200 bbls. potential, except twin wells on same lease, on basis of 60 per cent of potential, and shooting of wells over 100 bbls. in 2,200 and 2,500-foot sands. Water is encroaching rapidly in Howard County wells.

Winkler County proration decreased 25 per cent. Yates Pool potential also showed decreases. These pools no longer thought great menaces once supposed.

Tests in Culberson and Garza County attract notice.

World's deepest well makes new high, 2,590 bbls.

The LEADERSHIP of PENBERTHY PRODUCTS



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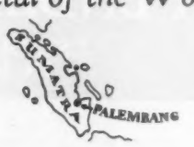

Customers in Palembang, Sumatra, an oil territory remote from civilization, regularly transact business through The Exchange Banks of Tulsa.

EXCHANGE BANKS OF TULSA
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Gets Gasoline Above the Deep Oil Sand

Sinclair Well in Oklahoma City Pool First to Obtain It in Top of Siliceous Lime. Future of Pool Problematic.

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Interest is centering this week around the play at Oklahoma City, where the Sinclair Oil & Gas Co.'s No. 1 Kinter, NW cor. SE, Section 30-11-2w, Oklahoma County, made gasoline in the top of the siliceous lime — the first and only well in the new pool to show gasoline before reaching the deep oil sand. The crew had started to drill out the cement plugs after they had cemented the 7-inch casing and had rigged up standard tools, at 6,188 feet, the total depth. The well blew in making 8,000,000 feet of gas and it made 87 bbls. of gasoline in eight hours from the lime at 6,165-68 feet, where it also blew the tools up the hole, causing a bad fishing job.

No big increases in flush production are expected in the State with the exception of the Asher district and the Oklahoma City Pool. By June 15 the major purchasing companies are expected to have the Asher situation in hand and it is not believed this pool will reach the proportions that some of the Seminole area pools did during their flush periods.

The future of the Oklahoma City area is exceedingly problematical. The wells there are expected to produce oil in the deep horizon only, 6,400 to 6,500 feet deep. It takes six months to complete one well. A lot of things can happen in that time and it will be many months before the results can be felt in increased production.

However, during the next two or three weeks, more will be known about the area as several wells are nearing the deep sand. The location of these wells in the pool is such that they will define or condemn a large area southeast and northwest from the discovery well.

Intensive Play in Pottawatomie

An area that is getting an intensive play is in Section 8-9-16-17 in Township 7-4, Pottawatomie County. It is northwest of the St. Louis Pool and northeast of Pearson Switch Pool. The only oil production found in these sections to date has been in Sections 16-17 in the Hunton and Simpson, long considered by many oil operators to be so erratic in performance as to forbid costly expenditures to develop leases if these two horizons were the only ones they could expect to get production from. Unless the Wilcox sand becomes productive in this district, little is expected from the formations that are now producing. However, these sections will be given a thorough testing. Several new locations have been announced, and drilling is expected to start in a short time. The opinion of some geologists is that the district covered by these sections is favorable to finding oil in the Wilcox sand, as the wells that have been drilled are running higher on the producing formations than other wells that were drilled nearby.

If this district produces in the Wilcox sand, it will be the most westerly production from that horizon in the Seminole area. All the production farther west is coming from some other formation.

Older Wells Declining in Asher Area

The Asher area is at a stage which makes almost any day likely to see some well reach the pay horizon. Older wells in the pool are showing a big decline since the new wells have been drilled in. This condition is noticeable in the discovery well of the Simms Oil Co.'s No. 1 Laster, SE NE NE, Section 19-6-4, Pottawatomie County. The day the Prairie Oil & Gas Co. and Tom Slick Oil Co.'s well was drilled in, May 21, it made 3,535 bbls., and on June 3 gauge was 2,715 bbls., a decline of 820 bbls.

The fourth well to reach the Viola lime in the Asher Pool was the Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 2 Laster, SE cor. NE, Section 19-6-4, Pottawatomie County. The Viola lime was at 3,646-74 feet. The well produced 3,300 bbls. the first 24 hours, making it the largest well in the pool. All of the four wells in the pool showed a gauge on May 31 of 9,000 bbls. Of this amount the Simms Oil Co.'s No. 1 Laster, SE NE NE, Section 19-6-4, gauged 2,860 bbls. and Tom Slick Oil Co.'s No. 1 Bledsoe, NW SW NW, Section 20-6-4, produced 800 bbls.

McCulloch Oil Co. is drilling an interesting wildcat in the NW SE SW Section 28-6-4 Pottawatomie County. The well is 2 miles southeast from the discovery well in the pool. It was drilling at 3,753 feet Monday of this week apparently having missed the Hunton lime. It had the top of the Viola at 3,743 feet. All producing wells in the pool missed the Hunton lime.

St. Louis Extension

The north extension of the St. Louis Pool has been proved up and extended a location north and east by the discovery of oil in the Independent Oil & Gas Co.'s No. 2 Barrows, NW cor. Section 1-7-4 Pottawatomie County, which had the Hunton lime at 3,930-67 feet. After drilling up the cement plug from setting casing, the well blew in making 1,560 bbls. the first 24 hours. The well is east and north of the Shaffer Oil & Refining Co. and Keister & Manning's No. 1 Kelly, in the SE NE NE Section 2-7-4 Pottawatomie County. It made 1,920 bbls. when it was opened up after being shut in to 100 bbls. a day. The Independent Oil & Gas Co.'s No. 1 Barrows, SW NW NW Section 1-7-4 Pottawatomie County, had the Hunton lime at 3,910-90 feet, with a rainbow show of oil and still drilling. The same company's No. 1 Rhodd, NW cor. Section 16-7-4, Pottawatomie County, has been drilled to a total depth of 4,067 feet, and produced 1,952 bbls. of oil on June 1 by swabbing and flowing.

The Gypsy Oil Co. is drilling an important well in the NW SE Section 17-7-4 Pottawatomie County, three locations east of the Magnolia Petroleum Co.'s Latimer well in the same section, which is producing from the Simpson with a daily gauge of 1,200 bbls. The Gypsy well is showing oil in the Hunton at 3,835-83 feet where it filled up 3,000 feet with oil in a short time. It will be given a production test to determine the possibilities in this formation before drilling deeper to the Simpson horizon.

More Wells, But Less Oil

The last time the potential of the St. Louis Pool was taken, on April 30 this year, the gauge was 115,231 bbls. from 346 wells, while 30 days later it was 88,009 bbls. from 357 wells, an increase of 11 wells and a decrease of 27,222 bbls. Notwithstanding the additional wells the total production of the pool is still declining at a rapid rate.

Reiter-Foster Oil Corp.'s No. 1 Watkins, C SW SE Section 5-19-1w, Payne County, has been producing from the Misener sand at 4,837-47 feet, gauging around 150 bbls. a day. It is drilling deeper and found a hole full of water in the Simpson at 4,910 feet. The owners expect to test out the Wilcox sand and on June 1 were drilling at 4,942 feet.

In the Oklahoma City Pool, Sinclair Oil & Gas Co. has two wells that are drilling out cement after landing the 7-inch casing. Mid-Kansas Oil & Gas Co. is standardizing its two wells after cementing in the siliceous lime. Indian Territory Illuminating Oil Co.'s No. 2 Bodine, SW cor. NE SE Section 24-11-3w, is mudding off 10,000,000 feet of gas at 6,010-18 feet. The casing is stuck in the hole at 6,099 feet.

Sinclair Oil & Gas Co.'s No. 1 Stamper, NE SW NW Section 19-11-2w, Oklahoma County, was drilling ahead at 6,182 feet after loading the hole with water to prevent a gas blowout. The same company's No. 1 Kinter, NW cor. SE Section 30-11-2w, was bailing out mud and drilling out the cement at 6,188 feet.

Deepest Well in Field

Mid-Kansas Oil & Gas Co.'s No. 1 Fortson, C SW NE Section 24-11-3w, Oklahoma County, set 7-inch casing at 6,180 feet and was rigging up standard tools at a total depth of 6,308 feet. It is the deepest drilling well in the field. The same company's No. 2 Fortson, C NW NE Section 24-11-3w, landed 7-inch casing at 6,196 feet and is rigging up with standard tools at 6,266 feet.

Municipal Gas Co.'s No. 1 Brown, NW cor. SW, Section 36-16-17, Wagoner County, 4 miles southwest of Tallahassee, was originally completed as a gas well at 768 feet, producing about 2,000,000 feet of gas. There was supposed to be a second sand under the present one and it was the intention of the operators to deepen the well and test out the second formation in hope of increasing the volume of the gas. Deeper drilling in the same sand caused an increase of about 1,500,000 feet of gas. The owners, not being satisfied, drilled to the Timber Ridge sand, which was topped at 869 feet, and drilled to 882 feet, but instead of finding gas the production was oil. The oil tests 41.6 degrees gravity. The well made several flows over the rig before it was shut in. As there was no tankage on the lease no gauge could be made, but it was estimated that it would produce between 75 and 100 bbls. Completion will be delayed several days on account of the bad weather. As soon as tanks are erected the well will be cleaned out and an actual production test made. The same company has one other producing gas well on the lease and several dry holes that have been plugged in the shallow sand.

Earlsboro Townlot Campaign

Earlsboro townsite is to experience a town lot drilling campaign. The first location has been made by the Phillips Petroleum Co. in the northern part of the

(Continued on Page 156)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 385 ft.
Washoma Oil Co.'s No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rig.

BECKHAM COUNTY

F. Coogan's No. 2 Holmesburg, SE NW Sec. 25-9-25w	Drlg. 500 ft.
C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w	Shut down 3,460 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Trees Oil Co.'s No. 1 Rodgers, SW cor. SW Sec. 30-8-25w	Drlg. 2,240 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,465 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w	Shut down 1,500 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 13-19-10w	Underreaming 1,365 ft.

CADDO COUNTY

Abernathy & Brown's No. 1 Horton, SE cor. Sec. 8-6-13w	Drlg. 250 ft.
J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w	Drlg. up baller 5,700 ft.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Harris, SE NE Sec. 10-1-11e	Shut down 1,975 ft.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Rig.
Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11	Drlg. 7,155 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9	Abandoned 3,350 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8	Shut down 1,855 ft.
McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8	Rig.
E. W. Whitney's No. 1 Brown, C SE NE Sec. 10-2-8	Shut down 202 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

CREEK COUNTY

Shaffer et al's No. 1 Moore, SW SE SE Sec. 3-18-9	Rig.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w	Rig and tools.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Drlg. 4,830 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w	Rig.

GRANT COUNTY

Cowden and others.' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Cleaning out 4,665 ft.

GARVIN COUNTY

Gardner Pet. Co.'s No. 1 Halverson, SW cor. NE Sec. 8-4-2	Location.
Gilcrease Oil Co.'s No. 1 Kelly, SE cor. NW NE Sec. 36-3-3w	Drlg. 4,281 ft.

(Continued on Page 112)

Oil Prosperity Is Foreseen in Kansas

Wildcat Wells in Widely Separated Areas Are Finding Production and New Locations Are Being Made by Major Companies

By W. A. Spinney
Staff Correspondent, Kansas Fields

Production continues to mount to higher levels in Kansas, wildcat wells are finding oil in widely separated districts, and new locations are being announced on large blocks of leases by major oil producing companies. Leasing activity is as brisk as ever in all the western and northwestern counties of the State.

With the brighter outlook in the oil industry Kansas is expected to experience the greatest oil boom in its history. Practically all the crude oil found in the State is high gravity and it has been commanding the best prices. Notwithstanding the current increase in production, no ill effects in the crude oil market are foreseen. Operators and others connected with the oil industry are more optimistic over conditions than has been the case for many years.

The latest Kansas wildcat well to show oil is the Higgins & Steinbuchel's No. 1 Shurr, NE cor. SW, Section 21-20-10, in the extreme western part of Rice County near Raymond, on the Ellsworth Arch. It has a good showing of oil at 2,308 feet, and will underream the 8-inch casing about 200 feet before drilling in. This is the fourth showing of oil found in the well. Some free oil has been bailed from the hole. On account of the underreaming job it probably will be a week before the pay horizon can be tested out.

Showing Near Halstead

A wildcat well near Halstead, Kans., is showing oil. It is being drilled by the McPherson Oil & &Gas Co.'s No. 1 Stauffer, CEL N half NW, Section 11-23-2w, Harvey County, had the top of the chat at 2,966-3,002 feet, where it filled up 700 feet with oil, from 3,002-06 feet. It later had 2,000 feet of oil. It was then drilled to its present depth of 3,012 feet, and is standing with 2,700 feet of fluid in the hole of which about 500 feet is water. The well will be swabbed and tested. The oil tests 35.6 degrees gravity.

Gypsy Oil Co.'s No. 1 Hamant, SW NW, Section 14-26-2e, Sedgwick County, an offset to the Shell Petroleum Corp.'s Lygrisse well in Section 15-26-2e, Sedgwick County, flowed at the rate of 1,777 bbls. a day the first 24 hours. The well is flowing from the pay horizon at 3,162-66 feet, and is the second well completed in the new pool, sometimes known as the Lygrisse Pool. The Shell Petroleum Corp.'s well never actually flowed, only slopping over, and it has been making its big production by swabbing. It was the largest producing well in the county at the time the Gypsy Oil Co.'s well was drilled in. Gypsy Oil Co.'s well gives promise of being a better well as it is flowing naturally at the present depth and the company officials plan to deepen it a foot or two each day until all the pay sand has been drilled.

Ted Washabaugh and others' No. 1 Voshnell, NE cor. Section 9-21-3w, in the southern part of McPherson County, and in the north-and-south trend with Sedgwick and Harvey Counties, created interest a short time ago by a good showing of oil at 3,301-04 feet and then developed a fishing job. It is a rank wildcat well with good possibilities of making a commercial well when drilled deeper in the sand. The crew has been fishing for collapsed casing during the past six weeks with little hope of completing the well soon.

New Peak in Sedgwick County

Oil production in Sedgwick County reached a new peak again on Friday of last week, producing 35,513 bbls. The addition of three wells, one in the Lygrisse Pool by Gypsy Oil Co. and two in the Valley Center Pool by the Bu-Vi-Bar and others, and the Aladdin Petroleum Co., was the main reason for the increase.

The largest two wells in the county are the Shell Petroleum Corp.'s No. 1 Lygrisse, making an average of 2,000 bbls. a day, and the Bu-Vi-Bar and others' No. 4 Wright, averaging 1,900 bbls. a day. Of the county's total production, the Bu-Vi-Bar, Gypsy and Marland have over half. Their production is better than 18,000 bbls. a day from 29 wells.

A short time ago the Shell Petroleum Corp. completed a gas well, its No. 1 Haury, Section 11-23-2w, Harvey County, that gauged 18,000,000 feet of gas. Twenty-two miles of pipe line has been constructed from the well to Hutchinson, where the gas will be used for domestic purposes. The gas is showing a small amount of sulphur, which is unusual in gas wells in Kansas. It is not serious enough to hinder its use, nor affect the value of the big gas well.

Phillips Petroleum Co. has staked another location on its almost exclusively owned block in Ellis County. The new well will be No. 2 Shutts in the SW cor. NE Section 5-12-17w, Ellis County. The company's No. 1 Shutts was the first well drilled on the block, being located in the same quarter and section. It was completed last fall, showing for a daily production of 250 bbls. and then shut in to await additional wells and a pipe line connection. Phillips Petroleum Co. made a second oil discovery some 3½ miles south of the above wells in Section 20-12-17w, Ellis County, which also has been shut in. It has made a location to the west of the well, its No. 1 Weigel, NE cor. Section 19-12-17w.

May Be Bigger Than Valley Center

The Greenwich structure, on which both of the above wells are producing, is one of the largest in the county. It was found by using the core drill, and has been known to exist for several years. It is believed that the area covered by the structure will yield many flowing wells and it may be larger and more productive than the Valley Center Pool.

Another test for oil has been announced by E. W. Marland, Inc., and others' No. 1 Macket, SE cor. NW SW Section 30-27-2e, Sedgwick County, near Wichita. The new well is said to be located on a core-drilled structure, and it is only a mile from a well drilled years ago that is reported to have made a good showing of oil at 3,000 feet, in the top of the Mississippi lime.

Slick, Pryor & Lockhart have made a location on a six-acre tract at Greenwich, in the SE cor. SW NE Section 11-26-2e, Sedgwick County. It is a mile north of the discovery well, the Shell Petroleum Corp.'s Lygrisse well, and a little east. This small lease was acquired after the discovery well was completed.

T. B. Slick and Prairie Oil & Gas Co.'s No. 1 Sellans, SW cor. NE Section 36-15-13w, Russell County, has a good showing of oil in the Oswald lime at 3,100 feet and still drilling. Along with the oil is some water coming from a deeper formation. The well is running higher on structure than a well drilled several years ago by the Marland Production Co. to the south. The Gorham sand is expected at 3,350 feet.

Reno County Has Another Test

Reno County will have another wildcat test. It is to be a community well. Companies that have pooled their acreage and will join in drilling the well are: Skelly Oil Co., Amerada Petroleum Corp., Gypsy Oil Co. and Prairie Oil & Gas Co. It is to be a Wilcox test known as No. 1 Trembley, NE SW Section 30-24-7w. The joint operation includes only the section in which the well is located. In as much as short time acreage is held by these companies, it was deemed advisable to locate the well here.

The location is interesting on account of its proximity to the Skelly Oil Co. wildcat producer in southwest of Section 24-24-8, Reno County, which is pumping 20 bbls. a day from the Kansas City lime at 3,545-50 feet, completed some 18 months ago. Skelly Oil Co. owns the largest amount of acreage in the section, which is divided as follows: Skelly Oil, 400 acres; Amerada Petroleum Corp., 80 acres; Gypsy Oil Co., 80 acres; Prairie Oil & Gas Co., 80 acres.

The Empire Oil & Refining Co. is starting five wells in Butler County: No. 9 Cranston, SW SW, Section 22-27-5; No. 18 Hess, NW cor. SE NW, Section 18-26-5; No. 3-A Hutchinson, SE NW NE, Section 34-27-5; No. 7-B Hutchinson, SE NW NE, Section 27-27-5; and No. 81 Kooger, NW SE NE, Section 19-26-5. In Greenwood County the same company is building two new rigs, No. 2-A Patterson, SE NW SW, Section 36-23-11e, and No. 1-B Patterson, SE SW NW, Section 36-23-11e.

Will Go 6,000 Feet

Phillips Petroleum Co. is moving in a rig on its 8,000-acre block in Hodgeman County, on the location recently announced. The test will be the No. 1 Houseman, NW NE NE, Section 30-22-22w. The well will go to 6,000 feet in its search for oil, unless oil or gas is found in paying quantities at a lesser depth.

New work is springing up around the Gypsy Oil Co.'s wildcat well in Sumner County, near Caldwell in Section 16-35-3w. The same company's two offsets to the discovery well are rigging up. The west offset is No. 1 Davidson, SW cor. NW SW, Section 16-32-3w, Sumner County. The south offset is No. 1 Gibson, NW cor. NE, Section 17-29-4w, Grant County, Oklahoma. The southwest offset is the Amerada Petroleum Corp.'s No. 1 Clark in the NW NE, Section 17-29-4w, Grant County, Oklahoma. Gypsy Oil Co. is drilling its No. 2 Douglass, NE cor., Section 23-24-2w, Sumner County, and the Gypsy Oil Co. and Blankenship are drilling No. 1 Robeck, C SW SW, Section 27-34-4w, Sumner County, at 3,025 feet.

Surprising even to its owners, Bu-Vi-Bar, Marland, and Gypsy Oil Co.'s No. 2 Corr, NW NE SE, Section 1-26-1w, Sedgwick County, a new extension to the west in the Valley Center Pool, had the top of the Simpson pay at 3,352-56 feet, and the hole filled up 3,000 feet almost

(Continued on Page 156)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

Company, farm and location—	Remarks:
BARBER COUNTY	
Barbara Oil Co.'s No. 1 Angel, NW cor. NE Sec. 14-33-13w	Drlg. 2,290 ft.
Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w	Rig on ground.
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Shut down 2,760 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Drlg. 4,691 ft.
BARTON COUNTY	
Gobel & Bending's No. 1 Bartlett, SW cor. SW Sec. 28-17-15w	Drlg. 900 ft.
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Phillips and Shell's No. 1 McClellan, SE cor. SW Sec 23-26-6e	Abandoned 3,307 ft.
BUTLER COUNTY	
White Eagle's No. 1 Bachelder, SW cor. Sec. 17-25-3e	Rig.
Lilly & Schreck's No. 1 Newton, NE cor. NW NW Sec. 17-25-7	Abandoned 745-65 ft.
Crawford et al's No. 1 Thompson, NW cor. SW Sec. 2-24-3e	Shut down 200 ft.
Aladdin Petroleum Co.'s No. 1 Bronsenger, NE cor. NE SW Sec. 24-27-3	Rigging up.
Shell Petroleum Corp.'s No. 1 Thiesstin, C SE SW SE Sec. 10-24-3	Drlg. 2,775 ft.
Smith & Ash's No. 1 Donnelly, NE cor. NE Sec. 8-24-6	Drlg. 2,660 ft.
CHASE COUNTY	
Marland Prod. Co.'s No. 1 fee, SW NE Sec. 8-31-8e	Fishing 2,125 ft.
COWLEY COUNTY	
J. B. Markley's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
DICKINSON COUNTY	
Prairie Oil & Gas Co.'s No. 1 Morgan, NW cor. Sec. 26-16-3e	Rig.
Milmac's No. 1 Buhler, SW NE Sec. 28-16-4e	Drlg. 790 ft.
ELLIS COUNTY	
T. C. Johnson's No. 1 Robbins, SW NW Sec. 15-14-16w	Drlg. 2,030 ft.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,850 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Drlg. 2,130 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Phillips Pet. Co.'s No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Drlg. 3,165 ft.
Phillips Pet. Co.'s No. 1 Dechant, NE SE Sec. 12-13-16w	Drlg. 3,250 ft.
Phillips Pet. Co.'s No. 1 Schneider, NW cor. Sec. 20-12-17w	Drlg. 3,429-39 ft.; 108 bbls. in 8 hrs.; shut down.
Burger et al's No. 1 Hadley, SW cor. SW NW Sec. 20-11-17w	Fishing 775 ft.
John Brown No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 1,850 ft.
ELLSWORTH COUNTY	
The Texas Company's No. 1 Sherman, NE SW Sec. 16-17-6w	Rig on ground.
EDWARDS COUNTY	
Amerada & Wilcox's No. 1 Teansil, C NW NW Sec. 32-25-19w	Drlg. 5,195 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w	Sand 4,666-70 ft; 14,000,000 ft. gas; shut down.
GEARY COUNTY	
Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5	Fishing 2,170 ft.
GRAHAM COUNTY	
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w	Drlg. 3,600 ft.
HARPER COUNTY	
Amerada Pet. Corp.'s No. 1 Mendiville, SE SE Sec. 24-34-6w	Hole full water 5,368-75 ft.; shut down.

Dixie Area, Caddo Parish, Still Puzzle

Two Failures May Be Offset by Gulf Refining Company's Well Showing for a 400 to 500-Bbl. Producer There

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., June 3.—Between Standard Oil Co.'s No. 1 Henderson, in Section 7-19-14, and Root Refineries' No. 1 Liebman, in Section 12-19-14, both of which were failures, and Gulf Refining Co.'s No. 1 Oden, in Section 18-19-14, it seems to be a 50-50 proposition whether the Dixie district of Caddo Parish will prove a pool. Closely grouped with the two failures, the Gulf's well made a drill stem test of sand from 2,382-2,400 feet that showed for a 400 to 500-bbl. producer. The tool was left open and the well flowed for 10 minutes at that rate and then was shut in and the flow killed to set 6⅝-inch casing. The performance seems to back up the theory that the Dixie district is a case of circumscribed lenses of sand rather than a pimple as at first surmised. Meanwhile the discovery well in Section 17-19-14 has sunk to 30 bbls. daily on the pump. There was no more encouraging news from Dixie Oil Co.'s No. 92 Dillon, Section 13-21-15, the deepest hole in North Louisiana. Bailed the third time in a week after taking 9 feet more hole and bailing twice in that distance, the well did not improve on its original showing of 192,000 feet of gas at 1,000 pounds. Total depth is 6,130 feet and more core is being taken.

If this hole could have been made a well last December, it probably would have been a success; but, standing full of mud for four or five months the chances are that the gas has been effectually sealed off. Five or six thousand feet of mud, however thin, weighs a lot and in four or five months could penetrate a considerable distance into the sand. Whether or not the Dixie will attempt another well to the same horizon in this area has not been asked. Chances are that it will, particularly if and when T. B. Slick gets busy on his 36,000 acres in Claiborne Parish.

Dolet Hills District

DeSoto Parish activities came up front when Magnolia Petroleum Co.'s No. 1 Clements, Section 28-12-11, in the Dolet Hills district, made a drill stem test of sand from 2,604-12 feet that indicated a 100-bbl. well and set 6⅝-inch to bail and bring in. Benedum & Trees Oil Co. started another hole in Section 22-14-12 which is drilling below 2,600 feet after getting a show of oil and gas at 1,732 feet. J. P. Becker's No. 1 Tull, Section 23-12-15, had a little gas at 1,246 feet but went on down and is drilling below 1,400 feet. A. A. Fair has built a block of 3,500 acres centering on Section 1-12-13, 3 miles west of Bull Bayou (Red River) production and plans a 3,500-foot well to start by June 15 provided he can get the necessary and customary support in either protection purchases or dry hole money.

Mount Holly District

Mount Holly district of Ouachita County, Arkansas, was not in the picture so far as proven area goes except for two new locations by the McDonalds. C. H. McDonald made location for No. 3 Wilson in the SW cor. E half SW NW, Section 25-15-18, and has rig up, and McDonald Brothers have derrick up for No. 3 Wilson in the NE cor. NW SW, Section 25-15-18. Mount Holly, like the Dixie district in Caddo Parish, is a great deal of a guess. They look good but have not performed in such wise as to back up their looks. While the McDonalds are starting their two wells, Wingfield and others have taken about 1,000 acres in the northeast corner of the Smackover and are interesting operators in a 4,000-foot test proposition. If it goes through it will be valuable. Several tests have been drilled in the same part of the field to 3,000 feet and deeper but none to 4,000 feet. Some think if there is any encouragement at all in the prospective 4,000-foot test it will be drilled to 4,500 feet. It all depends upon whether owners of shallower production see fit to spend money in prospecting a possible lower horizon—whether they want to test the theory "once on structure, always on structure." John Woodley and Bruce Hunt of El Dorado have assembled a block centering around Section 34-19-18 in the extreme southwest corner of Union County and plan a 3,500-foot test within 90 days provided they can get desired support. This follows another wildcat recently begun in the same strip just north of the state line, location of which is a few miles to the west in Township 20-23, Columbia County.

Week's Completions

The week's completions record is reminiscent of the old days when Smackover and El Dorado were popping open. Most of them were gas wells in the Monroe district but Richland and East Texas were fairly well represented and there were one or two producers. Falcon Oil Co. put No. 1-B Muslow, Section 29-20-15, Mooringsport district of Caddo Parish, on the pump making an initial 25 bbls. from 2,302 feet. Woodley Petroleum Co.'s No. 4 Whitehouse, in Section 35-16-12, Elm Grove district of Bossier Parish, gauged 1,500,000 feet of gas, total depth 2,422 feet. H. L. Hunt abandoned No. 6-A Urania, Section 2-10-1e, LaSalle Parish, Urania district, as a salt water hole at 1,285 feet—about 300 feet up from the average depth of Urania producers. Interstate Natural Gas Co.'s No. 5 Hunter & McCormick, in Section 40-20-3, Ouachita Parish, gauged 5,680,000 feet of gas at 900 pounds, total depth 2,170 feet. La Del Oil Properties' No. 47 fee, Section 6-19-5, made 6,500,000 feet at 254 pounds, total depth 2,185 feet. Magnolia Petroleum Co. got 328,000 feet at 340 pounds in No. 3 United States, Section 18-19-5; total depth 2,265 feet—somewhat discouraging as to prospects for the immediate vicinity. Pioneer Oil & Gas Co.'s No. 1 Fudicker, in Section 18-18-5, on the other hand, did 5,000,000 feet initial open flow at 830 pounds, total depth 2,277 feet.

The Union Parish angle of the field registered Imperial Oil & Gas Products Co.'s No. 1 Pullen, Section 20-20-4, as an 8,000,000-foot gasser at 2,155 feet, rock pressure 800 pounds.

The prize gasser of the week was Louisiana Oil Refining Co.'s No. 3 Nelson, Section 28-21-10, which gauged 39,090,000 feet of gas at 1,525 pounds from a total depth of 4,663 feet.

Harrison County Work

Harrison County was the location of all East Texas' completions—one failure and two gassers. The former was an old hole being deepened which is dropped from the roll. The two gassers were Nick Barbare's No. 2 Saunders, E. M. Jenkins Survey, 1,000,000 feet of gas, total depth 2,404 feet, and C. H. Lyons and others' No. 2 M. M. O'Banion, 1,000,000 feet of gas, total depth 2,398 feet.

Gulf Refining Co. completed No. 1 Cook as a salt water hole at 3,765 feet. Location is in Section 1-18-15, on the west edge of the old El Dorado east side production and was drilled from the grass roots through the red beds after a prior test, deepened from the original horizon, had made a small amount of oil—just enough to pay out eventually. Grimes Brothers' No. 2 Hill, in Section 7-18-14, started pumping 20 bbls. of oil and 30 bbls. of salt water from 2,264 feet.

New locations in the Monroe district and in Richland Parish reflect preparations for supplying the three new lines being built to St. Louis, to the Shreveport center and to Birmingham, Atlanta and Chattanooga. There are a few every week but this week Palmer Corp.'s activities are especially noticeable. Palmer Corp. bought the gas rights on all the many thousand acres the Gulf Refining Co. had in this territory about 18 months or two years ago but has not been particularly active in developing the area while negotiations for the St. Louis line were under way. Now that all the preliminary work has been wound up, however, it is getting busy and a vigorous campaign of drilling may be expected, for instance, five new jobs in its own name this week plus others carried under the name of other subsidiaries of the Louisiana Gas & Fuel Corp. All these new jobs are in the north end of the field or between it and the more thoroughly developed southern two-thirds of what is regarded as proven area.

Production Declines

Production from the district resumed its decline, halted somewhat during the past week or two, with a drop of 350 bbls. the greater part of which appears from Louisiana. The raise in posted prices has not stimulated drilling or release of oil from storage. Louisiana runs were 35,135 bbls., 270 bbls. less than the average for the week before, and Arkansas' was 71,445 bbls., a decrease of 80 bbls. Urania and DeSoto-Red River in Louisiana, and Nevada County in Arkansas ran a few barrels more than they did last week but not enough to preserve the balance in contrast with declines in all other pools. It is doubtful that the last, or any future, increases in the price of crude will encourage any drilling for new production in proven territory in North Louisiana due to the disturbed state of affairs politically. Arkansas affairs are a little bit better but there is no incentive to launch much new work in either proven or prospective or rank wildcat territory except in the northwest quarter of the State. There seems to be a great deal of curiosity as to how much gas there is.

The State geological survey's reports on the Arkansas River Valley are not over enthusiastic as to oil possibilities though possibilities of commercial gas are regarded more favorably. Arkansas Natural Gas Corp.'s experience in the Clarksville district embracing parts of Johnson and Logan Counties are positive. They have drawn the attention of others and that part of the State seems destined for quite a bit of activity during the next few months.

Pipe line runs from the several pools in the Shreveport division for the last week were:

Louisiana

	Bbls.
Caddo, light	8,095
Caddo, heavy	3,255
Homer	4,110
Haynesville	5,310
DeSoto-Red River	3,895
Elm Grove	610
Bellevue	580
Cotton Valley	2,690
Urania	5,860
Pleasant Hill	480
Sarepta-Cartersville	250
Total	35,135

Arkansas

El Dorado	4,690
Smackover, light	6,075
Smackover, heavy	48,775
Stephens	1,020
Nevada County	1,100
Lisbon	1,350
Champagnolle	8,335
Bradley	100
Total	71,445
Both states	106,580
Last week	106,930
Decrease	350

NUMEROUS FAILURES IN WILDCAT AREAS IN LOUISIANA-ARKANSAS

By D. H. Bancroft

SHREVEPORT, La., June 3.—First completions in the Dixie district of Caddo Parish following D. C. R. Co.'s No. 1 Hunter estate in Section 17-19-14, were failures. Standard Oil Co.'s No. 1 Henderson, Section 7-19-14, northeast of the discovery well, was abandoned as a dry hole at 2,427 feet and Root Refineries' No. 1 Liederman, Section 12-19-15, 3 miles east of the discovery was abandoned as a dry hole at 2,588 feet without testing. The discovery well, now listed on production records as Standard Oil Co.'s No. 1 Hunter, has sunk to 30 bbls. on the pump. There seems to be some difference of opinion as to whether the Dixie district is a pimple of solid sand or a number of small lenses scattered in a matrix of shale and gumbo and occurring at the same approximate level, with protagonists of the lense idea seemingly having the best of the argument. They cite the occurrence of oils of varying characteristics and constitutents occurring at the same levels as the foundation for their argument, and refer to prior experiences of Victor Wenzel, The Texas Company and others in the circumscribed Shift Tail lake area a short distance north in which these experiences were developed as their criterion.

Another Well in Zwolle

While most of the wildcat completions in the district were failures, the Zwolle district of Sabine Parish developed its second producer in R. L. Gay's No. 3 Bowman-Hicks in Section 14-7-14, which started off flowing 12 bbls. of 41 gravity oil from 38 feet of broken formation, total depth 2,178 feet. It has since increased to 18 bbls. Its predecessor, No. 2 on the same lease and section, started off flowing 50 bbls. from 12 feet of broken sand, total depth 2,130 feet last December, and has increased until on the last gauge it was flowing 62 bbls. per day. Gay abandoned No. 1 Bowman-Hicks, also in 14-7-14, as a dry hole at 3,621 feet.

Tensas Parish Test a Failure

Enochs and others finally gave up their effort to test the deeper strata below 2,400 feet in No. 1 Curry, Section 39-11-12, Tensas Parish, and abandoned the hole as a salt water test at 2,765 feet. They had 23 feet of broken sand, total depth 3,569 feet, that showed oil and gas and set 4½-inch casing with liner but the test de-

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NORTH LOUISIANA

Bossier Parish

Cartersville—Delaware-Louisiana Development Co. has gone back to No. 4 Bollinger, Section 38-23-11, completed June 12 last year, as a 40,000,000-foot

(Continued on Page 132)

COMPLET
IN OPERATION

The following Companies are some of those who have purchased BADGER Equipment:

Magnolia Petroleum Co., of Texas
Shell Petroleum Corp.
Craig Oil Co.
Freedom Oil Works Co.
Texas Pacific Coal & Oil Co.
Gulf Refining Co.
Skelly Oil Co.
Phillips Petroleum Co.
Pierce Petroleum Corp.
Tide Water Oil Co.
Anglo-Persian Oil Co., Ltd.
Empire Refineries, Inc.
Marland Oil Co.
Vacuum Oil Co.
Associated Oil Co.
Barnsdall Corp.
Humble Oil & Refining Co.
Tidal Refining Co.
Standard Oil Co. of N. J.
General Petroleum Corp.
Beacon Oil Company
Lubrite Refining Co.
Pennzoil Company
Shell Company California
New Orleans Refining Co.
Emlenton Refining Co.
Independent Refining Co.
Richfield Oil Co.
The Texas Co.
Sinclair Refining Co.

Complete Badger Pipe Still Units are employed in

Topping

Atmospheric Distillation of Lubricating Oils

Vacuum Distillation of Lubricating Oils

Refining of Pressure Distillate

Reduction of Pressed Distillate

Rerunning Centrifuge Solution

In addition scores of Badger Fractionating Units are operating in connection with pipe heaters of various designs.

E. B. BADGER & SONS
NEW YORK TULSA

E UNITS

UNDER CONSTRUCTION

THE FOLLOWING LIST, COVERING ONLY A PORTION OF OUR CONTRACTS, SHOWS THE WIDE VARIETY OF TYPES JUST COMPLETED OR UNDER CONSTRUCTION

Size	*Crude*	*Type*	*Products*
2—12,000 Bbl. 2— 9,000 Bbl.	West Texas	Topping	Gasoline, Naphtha, Kerosene, Gas Oil, Fuel Oil Bottoms
2— 5,500 Bbl.	Mid-Continent	Atmospheric Topping and Lubricating Oil Distillation	Gasoline, Kerosene, Gas Oil, Wax Distillate Wax Slop, Heavy Bottoms
1— 7,500 Bbl.	Pennsylvania	Atmospheric Topping and Lubricating Oil Distillation	Gasoline, Kerosene, Gas Oil, Wax Distillate, Wax Slop, Cylinder Stock Bottoms
2— 2,700 Bbl.	Mid-Continent	Vacuum Distillation Reduced Crude	Cracking Stock and Heavy Bottoms
1—12,000 Bbl. 2—10,000 Bbl.	Mid-Continent	Topping and Vacuum Lubricating Oil Distillation	Gasoline, Naphtha, Kerosene, Gas Oil, Wax Distillate, Light and Heavy Lube Oils, Heavy Bottoms
1— 7,500 Bbl. 2— 6.000 Bbl.	Gulf Coastal	Topping and Vacuum Lubricating Oil Distillation	Gasoline, Kerosene, Gas Oil, Four Lube Oil Cuts, Pitch Bottoms
1— 9,000 Bbl. 1— 8,000 Bbl. 1— 7,000 Bbl.	Pressure Distillate	Single Stage	Gasoline, Kerosene, Light Gas Oil, Heavy Gas Oil, Bottoms
1— 4,400 Bbl.	Pressure Distillate	Double Stage	Light Gasoline, Heavy Gasoline, Bottoms
1— 900 Bbl.	Pennsylvania	Vacuum Distillation Reduced Crude	Wax Distillate, Overhead Cylinder Stock, Heavy Bottom Stock
1— 4,000 Bbl.	Pressed Wax Distillate Solution	Atmospheric	Gas Oil, Light Lube, Intermediate and Heavy Lube Oils
1— 3,000 Bbl.	California	Vacuum Distillation Reduced Crude	Gas Oil, Light Intermediate and Heavy Lube Oils, Asphalt Bottoms
1— 500 Bbl.	Pennsylvania Bright Stock Solution	Atmospneric Dist. Centrifuge Solution	Naphtha and Bright Stock
1—15,000 Bbl.	California	Topping	Gasoline, Naphtha, Kerosene, Gas Oil, Fuel Oil Bottoms
1— 3,000 Bbl.	Bright Stock Solution	Atmospheric and Vacuum Distillation	Naphtha and Bright Stock

SONS COMPANY

LOS ANGELES — — BOSTON

Extend Carolina-Texas Pool Half Mile

Old No. 3 Benavides To Be Deepened Beyond Anything Yet Attempted in Field. Humble Producer on Kohler Ranch

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., June 3.—Trapshooter Riley's No. 1 Benavides, near the center of the north line of Survey 685, in Webb County, a half mile and more south of production in the Carolina-Texas Pool, tested 11 joints of mud and oil and gas, and set casing Saturday. Total depth is 3,075 feet and top of sand at 3,060 feet. Nearest oil production is a half mile north but at 2,600 feet. Magnolia has one small well a half mile north of No. 1 Benavides at about the same depth that is making a few barrels of oil, and a half or three-quarters of a mile north of that, three gas wells completed a few years ago at around 3,000 feet and which have been putting gas into the lines to San Antonio have within the past few months begun to show a little yellow oil in one and casinghead gasoline in two others.

This test of Trapshooter Riley in Survey 685 was one of the features of chief interest in the Laredo district last week but not the only one as Humble got a small oil well in a gas field over in Duval County on the Kohler ranch. The oil in the Trapshooter Riley test is 47 gravity compared with 45 gravity in the Magnolia No. 1 Webster in Survey 684 which is the next section to the north and in the same sand.

To Deepen Old Well

A feature of interest in this connection is the announced intention of the Carolina-Texas Oil & Gas Trust to go back into the old No. 3 Benavides, a little south of the center of the north line of Survey 683 which is the section next west of 684, and deepen it beyond anything ever drilled in the field. This No. 3 was carried to about 3,000 feet where 8¼-inch casing was set and cemented and it has been standing in that condition ever since. The large sized casing was set so that the test in time could be deepened. A little to the south of it the Carolina-Texas No. 6 Benavides was drilled to 4,212 feet and had some promising looking sands but the hole was lost. This is the test that has been drilled in the field deeper than around 3,000 feet. The first gas sand encountered was in the discovery well at a little below 1,200 feet and made 15,000,000 feet, brought in in 1922. Deepened to the Mirando sand at 1,995-2,060 feet it increased to 25,000,000 feet of gas. The next sand below that is around 2,500 to 2,600 feet and the next at about 3,000 feet.

In approximately the center of Survey 684, and a half mile north of the Trapshooter Riley test, Usher Carson has some wells producing oil at 2,600 feet, and R. O. Barnsley has one at the same depth flowing 200 bbls. of 45 gravity oil and capable probably of pumping much more. This is the highest gravity oil in the Laredo district. The Carolina-Texas Pool has been mainly gas ever since the drilling in of the discovery well, November 19, 1921, known as the No. 1 Barnsley. Three years later a little casinghead product that looked like crude oil but very high gravity appeared in some of the tests that were first completed. Later Associated Oil Co. and Usher Carson brought in No. A-2-D Webster at 2,600 feet that flowed at the rate of 800 bbls. a day for a short time but seemed later to be only an edge proposition.

Humble-Kohler

Humble Oil & Refining Co. and Reiter-Foster's No. 24 Kohler, in the northwest corner of Survey 423 in Duval County, 165 feet from north and west lines, is pumping 160 bbls. of salt water and 40 bbls. of oil. Importance of this test is that it is on the southwest edge of the Kohler gas field. Total depth is 1,814 feet, corresponding to the gas sand depth in other wells. It is the first well in that area and on that structure to show oil though oil is had in the same sands as gas in most of the Laredo pools. Humble has an oil pool consisting of five wells producing a small amount of oil each at about 2,800 feet, 3 miles north of its gas field. This gas field was approximately 2¾ miles long northeast and southwest and was about a mile wide until the completion of this well which extends it a half mile. Reiter-Foster Oil Corp. owns a one-fourth interest in the proposition and Humble Oil & Refining Co., which owns the three-fourths, drills the wells, the ranch consisting of about 25,000 acres. Tests drilled and completed and those now drilling amount to a total of 26 and 15 of them are producers and 4 others are drilling.

Sun Oil Co. has spudded in a test in Survey No. 731 about 1½ miles west and a little south of the nearest of the Humble's group of five oil wells.

Humble Oil & Refining Co. has also gone back into the northwest corner of Survey 399, which is a little over a mile northeast of the group of five oil wells, and has made location for No. 27 Kohler 50 feet or so south of No. 17 which is a dry hole at 3,088 feet and abandoned.

Derricks Blown Down

Other than these tests the Laredo district proven areas were devoid of excitement except that about 30 derricks were blown down in a recent storm and a 55,000-bbl. tank in the Magnolia tank farm at Oilton was struck by lightning and 43,000 bbls. of oil burned up. Trussel, Cezeaux & Putman's No. 2 Bruni, near the station of Bruni, came in for 25,000,000 feet of gas but was expected.

Heavy rains over much of Southwest Texas have delayed field work for more than a week and wildcat tests especially have been held up due to soft roads and inability to move heavy loads. Proven fields have also been delayed except where the supply of fuel was such as not to be interrupted by condition of the roads.

Quite a bunch of wells were completed in the Joe Bruner Field in Caldwell County, all about average size and none adding anything particular in either acreage or information. T. C. Hadley plugged and abandoned his No. 1 Merriweather in the south end which looked for a time as though it would be a producer. South of the town of Luling and south of the supposed cross fault at the south end of the field, Forest Oil Co.'s No. 1 Lucy Moore, first reported as an artesian water well at about 600 feet, made a lot of gas which makes it interesting for that territory. It has a fishing job now at 1,500 feet. The field has been supposed to chop off at the town of Luling.

Nueces County

F. P. Zoch's No. 1 Baldwin, in Nueces County, a mile south of nearest production in the Saxet gas field, was brought in the first of last week, total depth 2,408 feet, and after it had cleaned itself of mud built up a pressure of about 1,200 pounds and is estimated at around 50,000,000 feet of gas. It is one of the best gas wells ever completed in the field and amounts to a very important extension adding more than 50 per cent to the length of the field which up to this time has not covered very much territory. With new gas pipe lines entering Southwest Texas, gas, it is understood, will be in demand.

Zavala County

Tritex Gas Co. completed No. 4 A. W. West in the north central part of Zavala County late in the week and at 850 feet got a 20,000,000-foot gas well according to the driller. It is the third gas well on that ranch but the others were much smaller.

In the Refugio Field there were quite a number of new locations but no producers completed and nothing of importance developed.

SOUTHWEST TEXAS

	Bbls.
Dale	494
Branyon	27
Bruner	49,014
Gonzales	80
Kingsville	242
Larremore	174
Luling	13,111
Lytton Springs	1,002
McMullen County	73
Medina County	30
Mirando District	11,767
Refugio	2,231
Somerset	1,910
Yoast	1,662
Total	81,817
Total previous week	80,042
Increase	1,775

COMPLETIONS

Caldwell County

Humble Oil & Refining Co.'s No. B-2 J. R. Tiller, 2,707 feet; initial production 300 bbls.

Humble Oil & Refining Co.'s No. B-3 Moses & Baggett, Samuel Shupe Survey, 2,670 feet; 450 bbls.

Humble Oil & Refining Co.'s No. B-2 Johnson, 2,675 feet; 500 bbls.

Humble Oil & Refining Co.'s No. 1 C. F. Dye, James Hinds Survey, 2,678 feet; 500 bbls.

Gulf Production Co.'s No. 3 J. L. Northcutt, James Hinds Survey, 2,671 feet; 600 bbls.

Turman & Brown's No. 1 A. C. Bridges, A. Floyd Survey, 28,748 feet; 90 bbls.

Lutex Oil Inc.'s No. 5 Wilson, A. Floyd Survey, 2,702 feet; 155 bbls.

Humble Oil & Refining Co.'s No. B-1 J. R. Tiller, 2,701 feet; 350 bbls.

Gulf Production Co.'s No. 4 J. L. Northcutt, James Hinds Survey, completed at 2,670 feet; pumping, no gauge.

Forest Oil Co.'s No. 1 Bridges, 2,739 feet; 100 bbls.

Humble Oil & Refining Co.'s No. 4 L. G. Hanson, James Hinds Survey, 2,739 feet; 400 bbls., flowing.

Humble Oil & Refining Co.'s No. 1 Addie Hinds, James Hinds Survey, 2,683 feet; 1,400 bbls., flowing.

Humble Oil & Refining Co.'s No. 1 J. A. Northcutt, 2,744 feet; pumping 175 bbls.

Humble Oil & Refining Co.'s No. 1 J. L. Northcutt, 2,670 feet; 2,300 bbls.

Humble Oil & Refining Co.'s No. B-3 J. R. Tiller, James Hinds Survey, 2,717 feet; 200 bbls.

Duval County

Humble Oil & Refining Co.'s No. 24 Kohler, Survey 423, completed at 1,814 feet; making 200 bbls. of fluid, 80 per cent salt water.

Nueces County

F. P. Zoch's No. 1 Baldwin, Block 21, 1 mile south of Saxet Field production, completed at 2,399 feet with 1,036 pounds rock pressure; volume of gas not gauged.

Webb County

Trussell-Cezeaux-Putman's No. 2 Bruni, Survey 10, Block 40, 2,336 feet; 25,000,000 feet of gas.

Zapata County

William Muchelroy Jr.'s No. 1 Trevino,

(Continued on Page 86)

NEW TERRITORY IN ZAPATA COUNTY DISCOVERED BY TWO WILDCATS

By B. D. Stevenson

SAN ANTONIO, Tex., June 3.—Laredo furnished the big news from wildcat areas last week when H. Muckelroy, Jr.'s No. 1 Trevino in Zapata County, 5 miles due west of the Randado oil pool in Jim Hogg County, came in a 3,000,000-foot gas well at 1,300 feet topping the gas sand at 1,293 feet. It is approximately 9 miles south and a very little west of the Mirando Valley oil pool, the discovery pool of the district and is about 2 or 3 miles east and a little south of the nearest gas production in the Jennings gas field. It opens a new strip of territory that probably has no relationship to any other pools.

The other wildcat feature of the Laredo district is the John Poppas' No. 1 Cuellar in Block 5, subdivision of Porcions 33 and 34, in Zapata County. It is over on the bank of the Rio Grande River and about 20 miles southwest of the Muckelroy No. 1 Benavides. On a drill stem test at 1,360 feet it showed considerable gas and looks like a well. Casing has been set and it will test in a few days. It is the farthest west of anything in the Laredo district and far removed from any other drilling, and is the first test ever drilled in that part of the country.

The understanding is there will be a little increase in the wildcatting in the Laredo district in the coming months. Some leases taken nearly five years ago are about to expire and they must either be drilled or released. Vacuum Oil Co., it is understood, will do some drilling in Duval County and Humble Oil & Refining Co. and Marland are expected to do some wildcatting on the Old Mexico side of the river where they acquired some leases several years ago. Some of the biggest and best looking structures in the country have been worked out by geologists in that section of the world and there has been little or no drilling thus far.

New Gas Activity

In the rest of Southwest Texas it is expected there will be a speeding up of drilling activity in the coast territory as a result of the entrance of a new gas line, the Magnolia Gas Co., and a consequent demand for gas. Also the Zoch extension of the Saxet gas field is expected to encourage some drilling in that territory with the chance there may be a still further extension to the southwest.

The picture has not changed much around the Luling area. Miller Brothers and Burgess' No. 1 Gib Springs which cored a showing 364 feet into the Edwards lime and will make a drill stem test as soon as the ground dries out enough to make it possible to get to the rig is one of the interesting features and will be watched with some interest. Showings are not usually had that deep into the Edwards. Total depth is about 2,624 feet.

L. W. Conner is roady to spud in as soon as he can get to his location on the Weinaug in Guadalupe County. Magnolia, Texas and Rogers & Heap each tried to find the producing spot on a structure there and missed it. Profiting by their tests Conner believes he has the loca-

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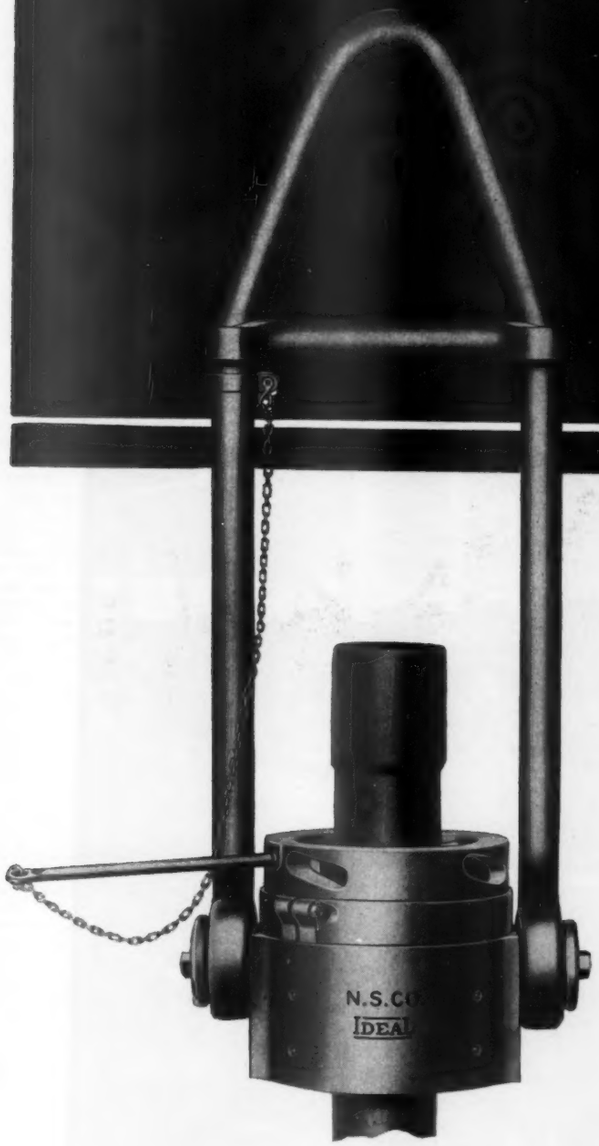

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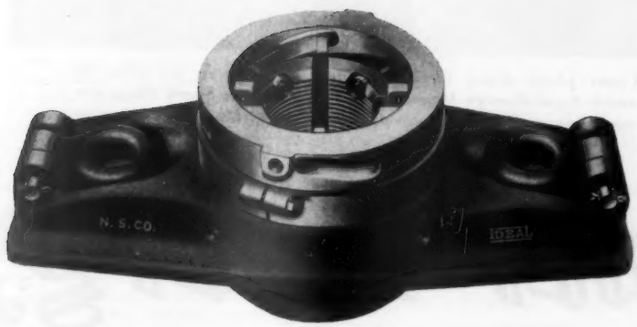

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Big Well at Record Depth on Gulf Coast

Yount Lee Oil Co. Gets 5,000-Bbl. Producer at 7,288 Feet in Old Jennings Pool. Open New Deep Sand at Blue Ridge

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., June 3.—All records for deep production on the Gulf Coast were broken this morning when Yount Lee Oil Co.'s No. 6 Housierre-Latrielle at Jennings, La,. came in flowing an estimated 5,000 bbls. daily from a total depth of 7,288 feet. The well not only is the deepest producer and the deepest hole ever drilled on the Gulf Coast but also is a wildcat being approximately 3,600 feet to the southeast of production. The well is flowing through two three-sixteenths-inch chokes and tubing with three joints of screen at the bottom of the hole. The oil tests approximately 30 degrees.

The previous production depth record on the Gulf Coast was held by Pure Oil Co.'s No. 3 Yount Lee Oil Co. at Sweet Lake which produced from a sand at 5,897 feet but that well several months ago was abandoned after it had quit flowing and had been deepened to 6,198 feet. The abandonment of that well left the deepest production at Lockport, La., where the Vacuum Oil Co. and Gulf Refining Co. have a well pumping from a sand at 5,476 feet. Yount Lee Oil Co.'s well is on the opposite side of the dome from the deep sands found by E. F. Simms on the west side where some short lived wells were completed slightly above 3,900 feet.

Although Jennings, sometimes known as Evangeline, is one of the oldest coastal fields with many prolific producers to its record, all production so far except for the Simms wells now abandoned and the Yount Lee well has been shallow with few wells below 2,500 feet. The prolific production of the field in the earlier days was from sands between 1,100 and 1,600 feet. Yount Lee Oil Co. also has an oil sand in another deep test at Jennings which at present is waiting cement to set at 7,009 feet with the bottom of the hole at 7,115 feet. It is a coincidence that this test also at Jennings is the second deepest hole ever drilled on the coast. The latter, No. 4 Crowley, is on the northeast flank of the dome.

Floods Cover Fields

With southeastern Texas virtually a sea of water following continuous heavy rains and river overflows, many Gulf Coast fields were completely isolated from the rest of the world, not only from access but also from all other means of communication, as the week closed. As a result operators in many cases were unable to learn what was going on in many of the fields and very little of importance was reported in coastal development during the week.

In several fields operations in some parts were suspended because of high water. Humble Oil & Refining Co.'s De Walt Field in the Brazos River bottoms of Fort Bend County was entirely shut down as the week closed. Parts of Liberty, Boling and numerous wildcats also were under water but from Batson, Orange, Sour Lake, Hull and several others no information has been received since the middle of the week. Barbers Hill, where several deep sand tests were due in, also was among those fields not heard from but it is not likely any work was suspended there, due to the elevation of the field.

Among the more important completions reported during the week was Moody Corp.'s No. 7 West-Schenck on the south side of Blue Ridge, which apparently has opened a new deep sand there. This well came in early in the week flowing at the rate of 1,150 bbls. daily from sand and shale at 4,467 feet. The oil tested 32.7 gravity at a temperature of 86 degrees. Three joints of screen were set.

Good Well at Hull

Republic Production Co. also got a good well at Hull in its No. 97 Dolbear, a former shallow producer deepened to 2,247 feet. The well came in flowing an estimated 1,200 bbls. The well is an inside edge well on the northeast side of the dome.

Gulf Production Co. added two fair producers on the northeast side of the Pierce Junction in its No. 8 Cain and No. 3 Fitzsimmons-Hamman. The former producer came in flowing at the rate of 750 bbls. daily from sand 4,655 feet while the latter flowed initially at the rate of 394 bbls. daily from sand at 4,443 feet. The latter had one joint of screen set.

DeWalt, Fort Bend County, just narrowly missed having a wild gasser under water with possible complications in getting it under control but just before the flooded Brazos River swept over the derrick floor causing the crew to seek higher ground the gas was killed and a christmas tree connected. The well was No. 6 Brazos, which blew out from a sand at 3,429 feet. No gauge has been taken of the well and all the field is now entirely under water.

The Texas Company's wild gasser on the new Bay St. Elaine Dome in the southern edge of Terrebonne Parish on the Gulf of Mexico also was put under control last Tuesday after blowing since the previous Friday. This well, No. 1-B Bay Coon Road, which blew out at 653 feet after drilling plug to test a sand, is estimated variously from 15,000,000 to 30,000,000 feet of gas daily but is shut in. The gas, which smells strongly of sulphur, necessitates the crew wearing gas masks near the well.

Drop in Production

Gulf Coast fields suffered another drop in production when the daily average totaled only 144,434 bbls., against 146,710 bbls. of the previous week. There has been a steady falling off in production for three weeks following a period in which the production climbed to a peak for two years. Few wells of notable size have been completed in two weeks and with a normal decline almost generally among the fields, a reduction in the total has been reflected. Figures for the week ending June 1 were:

TEXAS

	Bbls.
Allen	9
Barbers Hill	8,122
Batson	1,404
Big Creek	1,756
Blue Ridge	3,789
Brenham	220
Boling	1,625
Clay Creek	2,770
Damon Mound	675
DeWalt	11,721
Fannette	0
Goose Creek	5,841
High Island	1,377
Hull	9,161
Humble	6,689
Jasper	10
Markham	420
Nash	500
North Dayton	420
Orange	3,151
Orchard	157
Pierce Junction	15,954
Port Neches	430
Raccoon Bend	4,810
Saratoga	906
Sour Lake	2,676
South Liberty-South Dayton	5,914
Spindletop	37,375
West Columbia	6,592
Total Texas	134,474
Total previous week	127,453
Difference	3,021

SOUTH LOUISIANA

	Bbls.
Anse La Butte	50
Bayou Bouillon	215
Black Bayou	190
Edgerly	909
Jennings	898
Hackberry	5,422
Lockport	3,755
Sorrento	232
Starks	442
Sulphur	3,500
Sweet Lake	510
Vinton	3,802
Welsh	25
Total South Louisiana	19,960
Total previous week	19,255
Increase	705
Total Gulf Coast	144,434
Total previous week	146,710
Decrease	2,276

Terrebonne Tests

This company also is trying to make a producer of its No. 1-A Dog Lake Bayou on the new Dog Lake Dome in Terrebonne Parish. The well is estimated by The Texas Company officials as good for 200 bbls. daily. It probably will be put on the pump although efforts have been made to flow the well by air.

With three tests drilled on as many salt dome prospects in Terrebonne Parish and with seven other tests getting under way, The Texas Company's operations in Terrebonne Parish are assuming the interesting stage. Another test, No. 1-B Lake Pelto on the Lake Pelto Dome, has encountered an unusually shallow gas showing at 121 feet, but this test will be drilled deeper. The Texas Company's No. 1 Gardan Island Bay in the extreme southeastern tip of Louisiana which has been watched because of an oil showing at a total depth of 1,682 feet, tested salt water and will be deepened.

Completions, in addition to those previously mentioned, were only routine small wells, mostly workovers. Those reported were Supreme Oil Co.'s No. 3 Jackson, Orange, pumping 30 bbls. net oil, 4,634 feet; Sinclair Oil & Gas Co.'s No. 5 Granger, Orange, flowing 150 bbls. net, 3,029 feet; Orange Petroleum Co.'s

(Continued on Page 136)

GULF COAST WILDCATS

Week Ending June 1

BARBERS HILL—CHAMBERS COUNTY

Unice Oil Co.'s No. 1 Feldman, east flank ..... Running tubing 5,221 ft.
Mills Bennett Production Co.'s No. 1 Smith, east flank... Milling 4,412 ft.
Mills Bennett Production Co.'s No. 2 Smith, east flank... Coring 5,147 ft.
Mills Bennett Production Co.'s No. 1 Hamman-Armstrong, east flank ..... Coring 5,130 ft.; strong gas showing.
Mills Bennett Production Co.'s No. 1 Barber, north flank.. Coring 5,710 ft.; oil show.
Humphreys Corp.'s No. 8-A Kirby, east flank ..... Water sand 2,136 ft.
Humphreys Corp.'s No. 1-H Kirby, east flank ..... Drilling lime 2,158 ft.
Humphreys Corp.'s No. 1 Tarbutton, east flank ..... Sidetracking stuck drill pipe; total depth 4,350 ft.
Humphreys Corp.'s No. 1 Illfrey, east flank ..... Spudded.
Republic Production Co.'s No. 1 Kirby, south flank ..... Rigging up.
Rexal Oil Co.'s No. 2 McLean, east flank ..... Drlg. rock 2,148 ft.
Rexal Oil Co.'s No. 1 Smith, east flank ..... Drlg. gumbo and lime 2,269 ft.
Sun Oil Co.'s No. 1 Chambers, southwest ..... Sand and shale; show oil 5,723 ft.
Yount Lee Oil Co.'s No. 4 Chambers, southwest ..... Cmtd. 6⅝-in. casing 5,734 ft.; oil showing.
Yount Lee Oil Co.'s No. 6 Chambers, southwest ..... Drlg. shale lime 2,498 ft.

BOLING—FORT BEND AND WHARTON

South Texas Pet. Co.'s No. 6 Bay, northeast ..... Sand and lime 3,785 ft.; shut down high water.
Sun Oil Co.'s No. 4 H. R. Farmer, east ..... Sand and boulders 880 ft.; abandoned.
Sun Oil Co.'s No. 6 E. C. Farmer, east ..... Sand rock 2,451 ft.
Sun Oil Co.'s No. 7 E. C. Farmer, east ..... Gumbo 781 ft.
The Texas Company's No. 1 Bushnell, northeast ..... Sticky shale 4,172 ft.; shut down high water.
Union Sulphur Co.'s No. 3 Buller, south ..... Drlg. gumbo 1,542 ft.

RACCOON BEND—AUSTIN COUNTY

Humble Oil & Refg. Co.-Valley Oil Corp.'s No. 4 Hardy.. Drlg. shale lime 2,244 ft.
Humble & Valley's No. 1-D E. Grawunder ..... Abandoned 3,823 ft.
Humble & Valley's No. 2 O. Wilson ..... Drilled plug 3,179 ft.
Humble & Valley's No. 3 Saunders ..... Drlg. hard, sandy lime 1,067 ft.
Humble & Valley's No. 1 Buchanan ..... Swabbing 3,570 ft.
Humble & Valley's No. 1 Mueller ..... Waiting cement to set 3,283 ft.
Humble & Valley's No. 2-A Bracey ..... Drlg. sand 2,861 ft.
Humble & Valley's No. 1-B Washington ..... Drlg. sandy shale 3,307 ft.
Humble & Valley's No. 1 Helmuth ..... To set casing 3,229 ft.; oil show.
Humble & Valley's No. 1 Stahlbaum ..... Drlg. shale lime 1,109 ft.
Humble & Valley's No. 1-A Mitchell ..... Drlg. sand shale 1,701 ft.
Humble & Valley's No. 1-B Mitchell ..... Drlg. sand gravel 30 ft.
Humble & Valley's No. 2 Stravoski ..... Drlg. 740 ft.
Humble & Valley's No. 1 Koehn ..... Drlg. rock 824 ft.
Humble & Valley's No. 3 Walton ..... Derrick.
Humble & Valley's No. 4 Thompson ..... Rigging up.
Humble & Valley's No. 3 Dietrichs ..... Rigging up.
Humble & Valley's No. 1 Jackson ..... Rigging up.

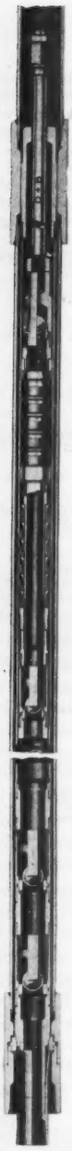
DE WALT—FORT BEND COUNTY

Humble Oil & Refg. Co.'s No. 8 Sugarland ..... Rigged up; standing high water.
Humble Oil & Refining Co.'s No. 3 Nelson ..... Shale and lime 2,166 ft.; shut down high water.
Humble Oil & Refining Co.'s No. 4 Nelson ..... Gumbo 1,651 ft.; shut down high water.
Humble Oil & Refg.'s No. 4 Camp ..... Shale and lime 3,035 ft.; shut down high water.
Humble Oil & Refg.'s No. 6 Brazos ..... Gas blowout but gas killed and well shut in 3,429 ft.; stdg. high water; no gauge.
Humble Oil & Refg.'s No. 1-B Deatherage ..... Sand 3,843 ft.; shut down high water.
Humble Oil & Refining Co.'s No. 1 Hamner fee ..... Sandy shale 3,246 ft.; shut down high water.
Humble Oil & Refg.'s No. 2 Hamner fee ..... Drilled plug 3,345 ft.; shut down high water.
Humble Oil & Refg.'s No. 3 Hamner fee ..... Location standing.
Humble Oil & Refg.'s Co.'s No. 4 Hamner fee ..... Gas showing 3,476 ft.; shut down high water.

HUMBLE—HARRIS COUNTY

Humble Oil & Refg. Co.'s No. 1 Williams, south side deep test ..... Drlg. gummy shale 4,806 ft.
Marland Oil Co.'s No. 1 Cezwaux, south side ..... Drlg. gumbo 2,773 ft.
Harvey Smith et al's No. 1 Rosenthall, north side ..... Rigged up.
So. Texas Pet. Co.'s No. 5 Morris, south side ..... Drlg. gumbo 3,165 ft.
So. Texas Pet. Co.'s No. 5 Morris, south side ..... Spudded.

(Continued on Page 120)



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Three Lea County Wells Show Water

Skelly Company's Jal Well, However, Makes 850 Bbls. Natural. Vacuum Wildcat Has 1,100 Feet of Oil in Hole

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., June 1.—Three wells in Lea County, New Mexico, yielded water this week upon being drilled deeper, these being Cranfill & Reynolds' No. 1 Wilson, Henderson, Dexter & Blair's No. 1 McDonald & Jewett, and the Texas & Pacific Coal & Oil Co.'s No. 1 State. The Vacuum Oil Co.'s wildcat had 1,100 feet of oil in the hole at last reports, and the Skelly Oil Co.'s No. 1 Joyner was drilled 8 feet deeper and made 850 bbls. the first 24 hours. The Humble Oil & Refining Co. announced two locations in Lea County. George F. Getty, Inc., has temporarily abandoned its No. 1 Cook-Ironsides in the Twin Mounds district in Eddy County, and has given up the plan to deepen its No. 1 Nicholas. A gas pocket and show of oil was reported in Rio Arriba County in Jarvis, Bennett and others' No. 1, in the Mancos shale above the Dakota.

Utah had no developments of importance.

In Colorado a strong show of gas just above the Muddy sand has been encountered on the Berthoud Dome, 20 miles southwest of the Wellington-Fort Collins Field in Larimer County, in the Five Square Oil & Gas Co.'s No. 1-A State, at a depth of 3,655 feet. Two new operations are being started in the state and several others are in prospect.

The Midwest Refining Co. has taken over the California Petroleum Corp.'s gathering system in the LaBarge Field in southwestern Wyoming. Two small wells were completed in Salt Creek, and the Doheny interests are starting another test on the Aspen structure in Uinta County. The Cody Petroleum Co.'s No. 2 Klindt, in the Oregon Basin Field, the discovery in the Amsden sand on that structure, was drilled a few feet deeper and ran into water.

A wildcat in Idaho is attracting some attention with shows of oil and gas through water in the Madison lime.

NEW MEXICO

The encountering of water in three wells in Lea County, New Mexico, served this week to offset the favorable news from the deepening of the Skelly Oil Co.'s No. 1 Joyner and the increased showing of oil in the Vacuum Oil Co.'s wildcat. One of the disappointments was in Cranfill & Reynolds' No. 1 Wilson, NE NW NE Section 23-25-36, in the Jal district. This well had been making oil at a total depth of 3,405 feet for more than a month, having pumped 85 bbls. on May 16. It was drilled deeper to 3,424 feet the past week and had a hole full of sulphur water from 3,415-21 feet. It was then plugged back to 3,405 feet and is swabbing for a test. Another well to show water was Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor. Section 18-20-34, in the Pearl district. At a total depth of 3,554 feet, it had 2,500 feet of 36 gravity oil in the hole. It was deepened to 3,612 feet in lime and at 3,610-12 feet sulphur water rose 1,000 feet in the hole in 3 hours. It will be plugged back to 3,594 feet. When the water is shut off it is believed this will make at least a 300-bbl. well.

The third well to run into water was the Texas & Pacific Coal Co.'s No. 1 State, SE cor. SW Section 22-23-36. It was drilled to 3,995 feet in lime, where it was tested. It made, estimated, 1,500 bbls. of salt water and 15,000,000 feet of gas. The water is believed to be coming from the horizon at 3,926-95 feet. It is being plugged back to complete as a gas well.

The news to offset these disappointments came from the Skelly Oil Co.'s No. 1 Joyner, NE cor. SE Section 26-25-36, in the Jal district, which has been standing at 3,331 feet for several months and making considerable oil. After being on production for some time it was opened up to full capacity and made 400 bbls. in 24 hours on May 15. It was then deepened to 3,339 feet and showed an increase, making 850 bbls. natural the first 24 hours. It was completed at this depth. The other favorable news was from the Vacuum Oil Co.'s No. 1 State, center west section line, Section 13-17-34, which showed for 1 bbl. per hour at 4,462-66 feet, and which at a total depth of 4,540 feet has 1,100 feet of oil in the hole.

New Locations

Two new locations in Lea County were announced this week, both being by the Humble Oil & Refining Co. One of these is on the B. A. Bowers permit, C NE SE Section 30-15-38, the footage being 660 feet from the east line and 1,980 feet from the south line, and the other is No. 1 Lindley, C NE NE Section 23-25-36, in the Jal district, the footage being 660 feet each way from the north and east lines. There has been a considerable slackening up in the number of new operations in this territory due undoubtedly to a modification of the Department of the Interior's stand on the drilling requirements on the public domain under the general leasing act of February 25, 1920. When the order was first promulgated on March 12 the operators generally felt they could not take chances on permits then in good standing and a rush of drilling equipment followed. However, the Department has modified its position and is granting extensions on permits and even requiring in some instances that no drilling take place within the first year of the 2-year extensions unless there are some special circumstances warranting it. This has served to relieve the uncertainty materially and instead of an excess of drilling that was not needed, it now looks as if prospecting will proceed along normal lines.

Lea County Operations

Routine operations in Lea County include the following: The Shell Petroleum Co.'s No. 1 Terry, SW NE Section 22-19-38, is drilling at 570 feet in red shale, and Joe Cook and others' No. 1 State, SW NW NE Section 12-21-33, has rig up. The Gypsy Oil Co.'s No. 1 Mattern, SW cor. SE Section 24-21-36, is running 8¼-inch at 3,200 feet to case off tools, and its No. 1 Humphreys, NW cor. SW Section 25-25-36, Jal district, is drilling at 1,145 feet.

The Texas Production Co.'s No. 1 Moberly, NW SE Section 17-26-37, is temporarily abandoned at 3,542 feet. It has been fighting trouble with the hole for several months and recently placed a shot in an effort to loosen and break up the iron. The same company's No. 1 Shepherd, SE cor. NE Section 6-26-37, has succeeded in drilling by tools at a total depth of 3,223 feet, and is killing gas at 2,900 feet preliminary to resuming drilling. It has been making some gas and around 120 bbls. of oil a day for the past 3 months at this depth. The same company's No. 1 Humphreys, NE cor. SW Section 18-20-32, is drilling in salt at 1,460 feet, the salt being topped at 945 feet, and its No. 1 Beulah Lynch, NW cor. SE Section 34-20-34, is preparing to swab for a test after being shut down at 3,731 feet for the erection of storage. A 37,000-bbl. tank has been completed. The Pueblo Oil Co.'s No. 1 Crosby, SW SW Section 29-25-37, is drilling at 2,914 feet and had an oil show at 2,844 feet.

The Empire Gas & Fuel Co.'s No. 1 Martin, SW SW NE Section 28-30-32, is drilling at 783 feet in red sandy shale, and its No. 1 Closson, NW SE Section 6-22-36, is drilling at 690 feet in red rock. Same company's No. 2-B State, SW SE Section 8-21-35, is drilling in salt at 2,700 feet, the salt being topped at 1,925 feet. The elevation of this well is 3,656 feet.

Cranfill & Reynolds' No. 1 Meyer, NE cor. SE Section 22-24-36, is bottomed at 715 feet and running the 15½-inch, and their No. 1-B State, NE cor. Section 2-21-33, has rig up. Bull & Hagen's No. 1 State, C NE Section 33-11-35, is shut down at 1,310 feet in red rock. The Midwest Refining Co.'s No. 22 Gregory, SE SW Section 31-25-37, is drilling at 2,680 feet in anhydrite and salt, and its No. 31 Capps, SW cor. Section 3-19-38, in the Hobbs area, is preparing to resume after recementing the 12½-inch at 1,549 feet.

Gas from the Marland Production Co.'s No. 1 Eaves well in the Jal district was turned into the El Paso Natural Gas Co.'s new 210-mile 16-inch line from southeastern New Mexico to El Paso the past week for testing purposes. The gas showed a pressure of 1,400 pounds to the square inch. The Texas Cities Gas Co., the distributor at El Paso and surrounding towns, has made the necessary preparations for the switchover and gas will be flowing to consumers probably this week if the test shows everything in readiness.

Eddy County

In Eddy County, George F. Getty, Inc., No. 1 Cook and Ironsides, C SW NW Section 8-20-29, in the Twin Mounds district, shut down at 390 feet in the red beds and is temporarily abandoned. The same firm has decided not to go ahead with the deepening of No. 1 Nicholas, NW cor. Section 25-20-29, which last week was preparing to drill deeper from 1,384 feet. The Ohio Oil Co.'s No. 1 Sellery, SE cor. NE Section 22-16-30, topped the salt at 480 feet and is drilling at 585 feet. Flynn, Welch & Yates' No. 2 Gissler, SE cor. SW Section 12-17-30, topped the salt at 460 feet and appears to be running about 15 feet higher than No. 1 Jackson, half a mile to the southeast. The Pueblo Oil Co.'s No. 4 Russell, NW cor. Section 18-17-31, is digging cellar, and its No. 1 Lee, NE cor. Section 34-17-29, has commenced spudding. Leonard & Levers' No. 1 Haggerty, NE NW Section 18-16-30, is drilling at 3,506 feet in lime, and the Grayburg Oil Co.'s No. 1 Burch, C NW SW Section 19-17-30, is drilling at 2,350 feet in gray lime. The Midwest Refining Co.'s No. 31 Jones, SW cor. Section 26-19-31, is drilling at 210 feet in red sand with the 20-inch at 120 feet, at which depth it was making 5 bbls. of water per hour. Same company's No. 31 Lane, SW cor. Section

(Continued on Page 82)

NEW FIELD OF HEAVY CRUDE FOUND ON RIBSTONE-BLACKFOOT STRUCTURE

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, June 1.—On the Ribstone-Blackfoot structure, 45 miles east of the Wainwright Field and close to the Alberta - Saskatchewan boundary, Meridian Oils' No. 1, LSD 3, Section 16-45-1w4, has opened what looks like a new field of heavy crude in Alberta. The well got the sand at between 1,827 and 1,833 feet, with a production of asphaltic crude which bailed at the rate of around 500 bbls. a day. The crude will test between 18 and 20 degrees, and is similar to the heavy crudes of the Wainwright fields. The production horizon is apparently the Blairmore-Dakota sand.

Meridian's No. 1 was started some years ago by the Advance Oil Co. of Calgary, and was taken over last year by Meridian Oils, Ltd, which in October, at 1,820 feet, struck a dry gas flow estimated at 30,000,000 feet. This was shut in. The gas pressure was not very strong, and it was decided this spring to deepen the test for oil. After 13 feet of drilling the well was brought in. The oil is clean and shows no water. Production comes from a clean quartz sand in the Blairmore-Dakota.

Meridian Oils, Ltd., is a subsidiary of Ribstone Oils, Ltd., controlling approximately 40,000 acres on the Ribstone-Blackfoot structure. Ribstone Oils' No. 2, LSD 5, Section 25-46-1w4, about 11 miles north and slightly east of Meridian's No. 1, is drilling 280 feet in the lime at 2,550 feet, after having got only water in the producing sand encountered in the Meridian well. Officers and directors of Ribstone Oils, Ltd., are: President, J. H. Woods; vice president, Eric L. Harvie; managing director, L. H. Miller; directors, W. J. Watson and C. R. LaVergne. The same directorate, with W. B. Trotter added, controls Meridian Oils, Ltd. R. L. Cook is field superintendent for both companies. Meridian's No. 1 is making very little gas with the oil.

In the same area, E. H. Ayling, acting for the Calbro Oil Co., has secured 80 acres in LSDs 9 and 10, Section 16-46-1w4. Hol-Gar Petroleum Co., Ltd., of Calgary is reported preparing to drill on acreage in LSD 7, Section 12-45-1w4, 2 miles east of the Meridian producer.

The Wainwright Field has three major folds or terraces, the Fabyan and Norton folds, which have been proved, and the Hawkins fold, not definitely tested. Apparently the field is a large one, the sands underlying an extensive area. Drilling to the producing horizon at 2,300 feet or less costs $25,000 per well. Apart from wells abandoned owing to water trouble, the field now has three producing wells at depths ranging from 2,256 to 2,274 feet, and three gas wells. Of the latter, Wainwell Oils' No. 2 is the largest, with an estimated flow of 38,000,000 feet. This is shut in, Fabyan Petroleum's No. 2 and Maple Leaf Oil Co.'s No. 1 supplying the immediate markets.

More Activity

In the Wainwright Field proper, there has been more activity than for several

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California to Remain High for a Year

Notwithstanding Agreement on Kettleman Hills, Santa Fe Springs and New Santa Barbara Field Important Factors

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., June 1.—Although daily production in California showed another increase during the past week and will probably continue its present up swing for some time to come due to deep zone exploitation at Santa Fe Springs, this factor was overshadowed by the successful conclusion of negotiations among Kettleman Hills operators whereby production in this field will be indefinitely suspended. Drilling operations in the middle dome of Kettleman Hills will be suspended until January 1, 1931, in conformity with the recent agreement entered into between operators and while no cessation of development work in the north dome will be obligatory no wells will be permitted to tap the pay as the bit will be stopped just above the production zone. The successful conclusion of negotiations between operators in the north and middle domes of Kettleman Hills has temporarily removed a threat which might have become a serious factor from both a production and marketing standpoint and it is quite probable that operators in the south dome will also announce a definite decision respecting development work in the very near future. It is the general consensus of opinion that state production will be able to absorb the output of Kettleman Hills within 2 years.

A detailed survey of production activities in California indicates the probability that state production will continue at a relatively high level for at least another year. Santa Fe Springs will continue to be a dominating factor for several months to come and it is highly probable that the recently discovered Santa Barbara Field will also prove an important factor as considerable development work is scheduled to be undertaken in this district immediately. The Elwood Field of Santa Barbara County, located about 10 miles west of the new Santa Barbara Field, will also continue to be an important factor due to additional development. Production of the Barnsdall and Rio Grande on land acreage at Elwood is showing a normal decline after a period of several months' duration, during which producing wells showed absolutely no tendency to conform with axiomatic rules regarding the normal tendency to decline. The drop in production registered by wells on the land side of the Elwood Field will, however, be more than offset by tideland development as the Barnsdall and Rio Grande have already started preparations to drill up the Elwood structure out in the open ocean. These two companies control all of the productive acreage on the land side at Elwood and a large part of the potential structure lying out in the ocean beyond high tide, although tideland permits of the Bankline Oil Co. and Pacific Western also look good.

The writer takes exception to those who have consistently minimized the potentiality and productivity of the Elwood Field of Santa Barbara County as I know of no other field in the state at the present time where all factors are as favorable as those governing this field. Maximum recovery of oil at a minimum of expense is the objective of all progressive operators and the acme of perfection from a development standpoint. These elementals are especially pronounced at Elwood and with the Barnsdall and Rio Grande holding a large part of the productive acreage, it is quite obvious that the daily output of these two companies will be maintained for some time to come, notwithstanding the fact that only a limited amount of development work has been undertaken since completion of the discovery well by the Barnsdall company. The Bankline Oil Co. has already announced an ambitious tideland development campaign offsetting the Barnsdall's Bell Luton lease and expects to get under way shortly. Rig material and lumber for the necessary wharfing will be hauled in by barges since access cannot be secured from the land because of objections from property holders who have been attempting to prevent this work.

Umpire F. C. van Deinse issued general order No. 4 during the early part of the past week and operators started complying with this mandate at 7 a. m. June 1. This new order, which is based upon a new plan of arriving at potential and allowable production, supercedes general order No. 3, which became effective May 16 and expired May 31. The new order which has just gone into effect contemplates a curtailment of 199,394 bbls. per day based on the estimated potential average production and is applicable to all wells actually on production, exclusive of recent completions finished and placed on production subsequent to May 21. New wells finished after May 21 will, in compliance with the usual procedure, be permitted to flow unhampered for a period of 10 days, but are expected to be pinched back on the morning of the eleventh day succeeding completion.

General order No. 4, unlike preceding instructions, applies a different ratio of curtailment, depending on the amount of daily production. Attention was directed to the possibility of such a change by the writer several weeks ago. All leases with a potential daily production of not exceeding 20 bbls. per well will be reduced 10 per cent under general order No. 4. Leases having a daily potential production exceeding 20 bbls. per well will be cut 15 per cent. All wells having an individual daily potential production of 500 bbls. or more will be reduced 34.33 per cent. The cut in this instance is determined by adding 19.33 per cent to the basic cut of 15 per cent governing the output of all wells producing 20 bbls. or more per day.

In issuing general order No. 4 Umpire van Deinse took delinquent producers to task for failure to comply with previous orders. He called attention to the fact that producers who do not assist by curtailing their production and producers resting upon a gesture of support, meaning those who have not and are not actually cutting down their production according to the intent of the general orders issued from time to time, are unquestionably imperiling the success of this real opportunity for the oil industry to put itself right internally and with the ultimate consumer and the government of California. It is a matter of common knowledge that independent producers in California as a whole have failed to comply with the attempt of the industry to curtail production in conformity with economic requirements. It is a source of much gratitude on the other hand, however, to find that quite a number of independent producers have more than met their moral obligations. Those who have failed to participate are weakening the general situation and may ultimately void the attempt of progressive operators to stabilize conditions.

Major producers and refiners, to use a slang expression, are being taken down the line in practically every field due to the refusal of independent producers to comply with curtailment orders. It remains to be seen just how long this situation will be tolerated as it is most certainly an unfair and inequitable situation. A recent check indicates a curtailment in production of approximately 75,000 bbls. per day since April 22, although actual production has not reflected this reduction, as new completions have offset the shutin from time to time. It is quite obvious, however, that state production would have been 75,000 bbls. per day higher than the actual output. About 95 per cent of this total has been borne by the larger companies and a relatively small number of progressive independent producers. Stocks of crude and refined oils are still piling up and if this conditions continues for any length of time the outcome is quite obvious. Heavy crude and fuel oil has increased 1,650,152 bbls. between January 1, 1929, and April 30, 1929, the amount on hand for these two periods being 100,249,993 bbls. and 101,900,145 bbls., respectively. Attention is directed to this situation because of the insistence of property holders and small producers that production activities be resumed in areas yielding a heavy unrefinable crude.

A resumption of activities on the Kern Front and in the Mount Poso Field of Kern County would force refiners and pipe line companies to again accumulate

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily Average	Total Last week	Daily Average	This year To date	Same time Last year
Crude oil	163,985	23,426	.....	.....	492,395	2,201,572
Fuel oil	.....	.....	.....	.....	49,950	111,621
Diesel and gas oil	.....	.....	.....	.....	834,415	914,227
Gasoline	226,758	32,394	240,478	34,354	8,186,772	4,794,955
Naphtha distillate	.....	.....	.....	.....	81,750	76,500
Coastwise—						
Crude oil	234,468	72,067	494,106	70,587	10,297,779	9,429,130
Fuel oil	475,975	67,996	291,051	41,579	9,246,070	7,690,148
Diesel and gas oil	4,144	592	33,325	4,761	649,894	648,765
Gasoline	230,844	32,978	.....	.....	4,312,707	2,416,458
Kerosene	524	75	8,661	1,237	30,456	26,435
Naphtha distillate	.....	.....	.....	.....	.....	171,566
Exports—						
Crude oil	200,245	28,606	6,150	879	2,039,266	979,992
Fuel oil	394,238	56,320	354,300	50,614	7,895,400	10,524,252
Diesel and gas oil	237,104	33,872	79,115	11,302	1,246,228	1,235,256
Gasoline	405,853	58,408	279,090	39,870	4,186,383	2,453,929
Kerosene	2,724	389	.....	.....	1,157,399	2,120,627

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Crude oil	.....	.....	.....	.....	.....	.....
Fuel oil	.....	.....	.....	.....	.....	.....
Diesel and gas oil	.....	.....	.....	.....	.....	342,425
Gasoline	.....	.....	.....	.....	1,050,732	966,932
Kerosene	.....	.....	.....	.....	.....	.....
Lubricants	.....	.....	.....	.....	.....	208,024
Coastwise—						
Fuel oil	124,920	17,846	.....	.....	1,036,609	1,789,660
Diesel and gas oil	.....	.....	.....	.....	284,312	140,119
Gasoline	132,480	18,926	120,206	17,172	1,837,505	1,713,025
Kerosene	.....	.....	.....	.....	43,824	90,025
Exports—						
Crude oil	.....	.....	.....	.....	121,603	79,199
Fuel oil	.....	.....	.....	.....	241,671	1,125,146
Diesel and gas oil	.....	.....	.....	.....	124,838	10,400
Gasoline	81,420	11,631	31,500	4,500	2,323,319	1,921,563
Kerosene	.....	.....	91,435	13,062	290,863	307,089
Lubricants	.....	.....	.....	.....	17,688	.....

GOOD PRODUCERS IN MIDLAND; SEVEN IN MUSKEGON DISTRICT

By Special Correspondent

MUSKEGON, Mich., June 1.—All but one of the eight completions in the Muskegon and Laketon Township areas were finished in the Dundee sand. None was dry although one will be only a small pumper. The potential open flow was increased by more than 4,000 bbls. a day by the seven new wells.

The Johnson Oil Refining Co.'s No. 5 John Thompson, SE NW, Section 12-10-17, Laketon Township, was estimated good for 2,000 bbls. initial. The Eagle Oil Corp.'s No. 1 Harm Doctor, NE SE, Section 12-10-17, made 75 bbls. in the first 35 minutes. The Reed Oil Co.'s No. 2 H. Young, SE NE, Section 11-10-17, was flowing at the rate of 600 bbls. a day and may be drilled deeper.

The Johnson Oil Refining Co.'s No. 2 John Thompson, SW NE, Section 12-10-17, Laketon Township, and the Swastika Oil & Gas Co.'s No. 3-B Charles I. Gilbert, SW SE, Section 6-10-16, Muskegon Township, flowed more than 500 bbls. each. Marie-Caswell-Kidder, trustees' No. 2 H. Shuler, NW NE, Section 12-10-17, made 240 bbls. initial.

The only new upper Traverse producer was Fred J. Estes and others' No. 2 Ellis I. Page, NE SE, Section 6-10-16, good for about 200 bbls. initial.

Eight new locations have been announced: Thompson Brothers' No. 1 Henry Smeltekop, NW SW, Section 5-10-16, Muskegon Township; Gilette-Beebe Syndicate's No. 2 on the north half of the same tract; C. C. Mitchell and Joseph A. Mesiroff's No. 5 Jacob Lewis, or Norris well, SW NW, Section 7-10-16, Muskegon Township; Neely, Forster and Senn's Nos. 1 and 2 Neely, Hewitt and Buteau; Royal Oil Co.'s No. 2 Albert Young, SE NE, Section 12-10-17, Laketon Township; Nelson & Witt, Inc.'s No. 3 George Fenner, SW SE, Section 11-10-17, Laketon Township, and United Petroleum Corp.'s No. 1 William Buys, NE NW, Section 11-10-17.

The Hervey-Bolema Syndicate's No. 1 F. A. Gritzner, SW NE, Section 17-11-15, Cedar Creek Township, was dry at 2,300 feet.

The Pennsylvania Oil & Gas Co.'s No. 1 Bert Snow, NW SE, Section 23-15-15, Leavitt Township, Oceana County, was dry in the Dundee after a shot at 3,250 feet. The Sankey Oil & Gas Co.'s No. 1 G. A. Beem, NW SE, Section 22-14-15, Newfield Township, Oceana County, was dry in the upper Traverse formation striking only a slight show of oil at 2,147

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large quantities of unrefinable crude. Those insisting upon a resumption of production in fields yielding heavy oil lose sight of the fact that 9,812,321 bbls. of light refinable crude have been placed in storage since January 10. If this oil had been run to the stills it would have yielded conservatively about 5,000,000 bbls. of residuum and increased the accumulation of heavy crude and fuel oil to 6,650,000 bbls. during the first 4 months of the year. It is hoped that producers of heavy oil will sit tight, as any resumption of activities will weaken the existing price structure and prolong ultimate stabilization. The Mount Poso Field of Kern County may bring this situation to a head, as producers in this district may be forced to resume production because of the insistence of property owners. The General Petroleum Co. had to resume production on May 1 in compliance with stringent lease requirements, and this work makes it almost obligatory for producers holding adjoining acreage to likewise resume production or permit drainage. The absence of pipe line facilities has retarded both production and development work but tentative plans are under way for the immediate laying of two or more lines, which, if constructed, may stimulate unnecessary drilling.

Santa Barbara Field

The new Santa Barbara Field, discovered by the Olympic Oil & Refining Co. on May 20, has become the mecca of many California operators, and all indications point to an extensive development program. Several potential producers have already got under way in the town lot area and considerable drilling will be started as the Santa Barbara City Council has just sanctioned the issuance of necessary drilling permits. In order to facilitate this work and safeguard the interests of the operators, Mayor T. R. Finley appointed an operating committee to represent the city and county of Santa Barbara, and land owners and oil operators. The committee, organized at the suggestion of R. D. Bush, California State Oil and Gas Supervisor, will be headed by Max Schott, a member of the City Planning Commission, who was named chairman. Other members of the committee are C. R. (Rolph) McCollom, chief geologist of the Pacific Western Oil Co., who will represent the oil producers; L. Deming Tilton, city and county planning director; Walter McIntosh, councilman of the ward in which the new field is located; J. F. Goux, city attorney, and Franklin Price Knott, owner of considerable property on the mesa where the discovery was made. One of the first duties of the committee will be to determine the amount of potentially productive acreage and to establish necessary regulations governing future work.

New Work

In addition to rigs already under way by the Exeter Oil Co., Dunlap & Knapp, General Petroleum Corp., Major Oil Co., William Rhoades, Pacific Western Oil Co., and J. O. Seeple, permits have been granted to Robert Bowles, E. E. Coombs, Doyle Petroleum Co., H. C. Davidson, Olympic Oil & Refining Co., E. A. Parkford, J. E. Hare, Travis Tate, George W. Ring, A. J. O'Dell, H. R. Macmillan, Richfield Oil Co., Union Oil Co. and several others. The city treasury of Santa Barbara has already been enriched to the extent of more than $50,000 as 40 applications for drilling permits have been filed, with 15 or 20 more expected to be received within a few days. Existing regulations governing development work call for a license fee of $1,000 in addition to a building permit fee, which must accompany each application. So far as known this is the highest drilling tax in California, as rigs will probably also be assessed for a certain sum each year in addition to the usual city and county tax. Considerable leasing is still under way in the subdivided town lot area where cash bonuses range all the way from $1,000 per lot upward, depending upon the structural location. The shallow depth at which production is secured in the new Santa Barbara Field indicates the probable completion of several new wells within 30 days. The Olympic Oil & Refining Co. has just finished erecting two new storage tanks and the discovery well will probably be on production again after having been temporarily shut in because of insufficient storage.

Santa Fe Springs

Daily production at Santa Fe Springs showed another substantial increase due to the completion of a number of large flowing wells in the deep O'Connell horizon and with 211 strings of tools in operation we may anticipate the completion of numerous others, especially during the next 30 days. O. J. Rhode, who surprised the boys several weeks ago by completing his No. 1 Sunshine Acres in the deep Clarke zone, followed up this achievement by bringing in No. 1 York a few days ago flowing 5,460 bbls. of clean 34.4 gravity oil and 6,000,000 feet of natural gas daily from the O'Connell zone at 6,819 feet. The former well is in the extreme eastern part of the field, while the latter is near the top of the structure a short distance east of the four corners. The Universal Consolidated, with a current daily production of approximately 21,000 bbls., also chalked up a nice well when No. 9 Blanchard was recompleted flowing 4,520 bbls. of unusually clean 34.3 gravity oil daily from the O'Connell horizon. This well, originally finished in the Buckbee zone flowing 2,650 bbls. per day from 5,774 feet in February, was recompleted after being redrilled and deepened to 6,473 feet. York & Lockhart recompleted No. 2 McKeen and this rejuvenated well is flowing 3,780 bbls of 34.3 gravity oil daily from the O'Connell zone at 6,801 feet. This project was originally completed in the Buckbee horizon last February flowing 1,460 bbls. from 5,891 feet.

The Union Oil Co., which is running 26 strings of tools and has a number of potential producers nearing completion, finished No. 40 Bell in the Nordstrum zone at 5,405 feet. This new producer, which required several days to get under way and clean up, is doing 2,110 bbls. of 33.1 gravity oil cutting 5 per cent. The Texas Company's No. 4 Standlee, which came in about two weeks ago flowing 11,000 bbls. per day from 6,450 feet, built up to 12,100 bbls. just previous to being pinched back a few days ago in compliance with Umpire van Deinse's curtailment order. The oil from this well, which was a recompletion in the O'Connell horizon, is exceptionally clean and is accompanied by 11,000,000 feet of saturated gas daily. No. 2 Mutual, another recent completion of The Texas Company, is also holding up in good shape, the initial being 6,890 bbls. of clean 33.6 gravity oil daily. No. 1 Hill of the St. Helens Petroleum, another recent completion, has been holding up well. This producer, which has just been pinched back in the interests of conservation, was doing 8,370 bbls. per day and 9,400,000 feet of saturated gas before curtailment.

Potrero

Max Pray focused the attention of operators on the Potrero Field when his No. 1 Gasho started flowing by heads from 3,831 feet. This well, located in the town lot area northwest of the Associated's holdings, shot half way up to the crown block on several occasions, but failed to result in sustained production due probably to insufficient gas pressure. The oil produced, although accompanied by considerable drilling fluid, tested 49.6 degrees and showed a conspicuous green cast similar to the oil secured at Lawndale, but considerably unlike crude produced in the Potrero Field, of which this area is a part. One of the interesting features in Pray's new well, in addition to the quality of the oil secured, is that it is producing from the upper sands heretofore passed up. A check revealed the possibility that No. 1 Gasho would probably be good for at least 100 bbls. per day on the beam if completed at its present depth. It is possible the hole will be deepened to the lower horizon. Work is being temporarily delayed pending recovery of a swab which was lost while the crew was trying to stimulate production. The Associated has landed a string of 9-inch in its No. 1 Potrero, bottomed at 4,527 feet, and this well, in the southwestern section of the field, should be tanking oil within a few days. The Lawndale Field sprung into the limelight again when the Smith Development Co. successfully completed No. 8 Peck flowing 570 bbls. of 32.7 gravity oil and 800,000 feet of natural gas daily from 5,884 feet. This company has a current daily production of 1,120 bbls. in addition to No. 2 Peck of the San Clemente Oil Co., doing 860 bbls. per day. The San Clemente Oil Co. is closely allied with the Smith Development Co.

Seal Beach

There were no new wells put on production in the Seal Beach Field but a

(Continued on Page 131)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	6,335	br. sh. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	1,165	hd. sd. drilling
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	Mtl.	building rig
Superior Oil Co., No. 1 Santa Paula, Ventura Co.	14- 4-21	550	hd. sd. drilling
Craise, F. A., No. 1 South Mountain, Ventura Co.	17- 3-21	Rig	suspended
Miley, E. J., No. 2 Red Mountain, Ventura Co.	7- 3-23	1,398	hd. sd. drilling
Miley, E. J., No. 3 Red Mountain, Ventura Co.	11- 3-24	Rig	suspended
Shell, No. 1 Simi, Ventura Co.	31- 3-17	2,914	redrilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,765	suspended
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	6,740	suspended
Lockwood Oil Co., Well No. 1, Ventura Co.	28- 8-21	Rig	suspended
Milham Explt'n., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well-idle
Milham Explt'n., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well-idle
Milham Explt'n., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well-idle
Milham Explt'n., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well-idle
Milham Explt'n., No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well-idle
Milham Explt'n., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well-idle
Milham Explt'n., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Explt'n., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well-idle
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	6,458	br. sh. drilling
Stabler, W. W., No. 1 Commanche Point, Kern Co.	23-32-29	3,409	suspended
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,230	suspended
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	6,100	suspended
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	2,177	sd. sh. drilling
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	2,781	hd. sd. drilling
Taft Drlg. Co., No. 1 Union Avenue, Kern Co.	2-30-27	Mtl.	building rig
Shell Oil Co., No. 1 Lerdo, Kern Co.	5-29-27	3,770	hd. sd. drilling
General Pet., No. 1 McFarland, Kern Co.	25-26-25	5,020	hd. sd. drilling
Union, No. 2 San Emidio, Kern Co.	5-10-21	3,240	br. sh. drilling
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	2,111	hd. sd. drilling
Currency Pet. Co., No. 2 Jacalitos, Fresno Co.	14-21-14	260	suspended
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	3,870	suspended
K. C. L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	114	suspended
Thomas Pet. Co., No. 1 Krayenhagan, Fresno Co.	33-22-17	568	cleaning out
Petroleum Securities, No. 1 Kerman, Fresno Co.	20-20-16	Mtl.	building rig
Petroleum Securities, No. 2 Kerman, Fresno Co.	28-20-16	Mtl.	building rig
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,650	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	3,540	hd. sd. drilling
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	34-31-15	Rig	rigging up
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,854	suspended
Garliepp, Fred, No. 1 Betteravia, Ventura Co.	20-10-35	Mtl.	building rig
Shell, No. 3 Guadalupe, Santa Barbara Co.	30-10-35	535	sd. drilling
Shell, No. 4 Guadalupe, Santa Barbara Co.	36-10-35	Rig	structure sur.
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	3,671	sd. sh. drilling
Petroleum Securities, No. 1 Goleta, Santa Barbara Co.	.....	1,474	sd. sh. drilling
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	816	sd. sh. drilling
Western Gulf, Point Conception, Santa Barbara Co.	X- 5-33	2,806	sd. sh. drilling
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	2,550	suspended
Standard, No. 1 Tortuga Canyon, Santa Barbara Co.	.....	2,659	to abandon
Olympic Oil & Ref. Co., No. 1 Mesa, Santa Barbara Co.	29- 4-27	2,248	discovery well
Nugent, J. F., No. 1 Palisades, Santa Barbara Co.	.....	295	sd. sh. drilling
Nevada Standard, No. 1 Goleta, Santa Barbara Co.	10- 4-28	4,106	br. sh. drilling
General Pet. No. 1 Elwood, Santa Barbara Co.	21- 4-28	3,297	br. sh. drilling
Pacific Western, No. 1 Naples, Santa Barbara Co.	7- 4-29	416	sd. drilling
Padre Oil Co., No. 1 Dos Pueblos, Santa Barbara Co.	18- 4-27	3,016	br. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	2,011	hd. sd. drilling
Keystone Oil Co., No. 1 Santa Maria, Santa Barbara Co.	33-10-34	Rig	rigging up
American Oil Co., No. Summerland, Santa Barbara Co.	33- 4-25	809	suspended
Getty, George F., No. 1 Summerland, Santa Barbara Co.	22- 4-26	4,804	sd. sh. drilling
Lincoln Drlg. Co., No. 1 Summerland, Santa Barbara Co.	22- 4-26	Mtl.	building rig
Keystone Oil Co., No. 1 Surf, Santa Barbara Co.	18- 7-35	Mtl.	building rig
Shell, No. Summerland, Santa Barbara Co.	18- 4-25	Mtl.	building rig
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	suspended
Channel Oil Co., No. 1 Fellowship, Santa Barbara Co.	29- 4-27	1,080	cleaning out
Continental, No. 1 Carpentria, Santa Barbara Co.	33 -4-25	4,130	gas well
Continental, No. 2 Carpenteria, Santa Barbara Co.	33- 4-25	2,670	sd. sh. drilling
Elwood Consd., No. 1 Goleta, Santa Barbara Co.	8- 4-29	3,430	to abandon
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	613	hd. sd. drilling
Italo American, Well No. 1, Colusa Co.	20-13- 3	735	hd. sd. drilling
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Applegate & Renshaw, Well No. 1, Merced Co.	24- 6-10	3,721	hd. sd. drilling
Kuhns, H. L., Well No. 1 Merced Co.	8-12-19	426	gr. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,544	suspended
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	2,840	hd. sd. drilling
Union, No. 1 San Lucas, Monterey Co.	8-22- 8	102	sd. drilling
Marland, No. 1 Bradley, Monterey Co.	32-24-11	5,590	hd. sd. drilling
Tux Oil Co., No. 1 Los Gatos, Santa Clara Co.	15- 8- 1	852	suspended
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,305	G. well-shut in
Associates Pet., No. 1 Lewis Creek, San Benito Co.	5-19-10	492	hd. sd. drilling

IMPORTANT SOUTHERN CALIFRONIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	5,487	suspended
Ohio Oil Co., No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	6,210	hd. sd. drilling
The Texas Company, No. 1 Long Beach, Los Angeles Co.	8- 4-12	Mtl.	suspended
Petroleum Securities, No. 1 Hernosa, Los Angeles Co.	32- 3-14	5,450	br. sh. drilling
Standard, No. 1 Hawthorne, Los Angeles Co.	5- 3-14	4,770	gr. sd. drilling
Circle Oil Co., No. 1 Gardena, Los Angeles Co.	23- 3-14	4,280	suspended
Allied Pet., No. 1 Redondo, Los Angeles Co.	28- 3-14	5,008	sd. sh. drilling
Shell, No. 1 Redondo, Los Angeles Co.	20- 3-14	1,150	sd. sh. drilling
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	1,477	reaming
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	2,188	sd. sh. drilling
Hansen, N. J., No. 1 Watson, Los Angeles Co.	17- 4-13	Mtl.	building rig
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Pugh Miller Drl. Co., No. 1 Calabasas, Los Angeles Co.	6- 1-17	2,570	br. sh. drilling
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,704	recemented
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,120	hd. sd. drilling
Beard, G. F., No. 1 Brea Canyon, Los Angeles Co.	30- 2- 9	115	sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	1,040	sd. sh. drilling
Urmi Oil Co., No. 1 Puente, Los Angeles Co.	31- 3- 8	Rig	rigging up
Shell, No. 1 Coyote, Los Angeles Co.	28- 3-10	1,714	sd. sh. drilling
Prairie Oil Co., No. 1 Montebello, Los Angeles Co.	32- 1-12	118	sd. drilling
Monterey Park, No. 1 Jepson, Los Angeles Co.	25- 1-12	3,927	resume work
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3- 9	Rig	suspended
Southwestern Drl. Co., No. 1 Richfield, Los Angeles Co.	21- 3- 9	3,940	br. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	270	sd. sh. drilling
So. Calif. Drl. Co., No. 1 Newhall, Los Angeles Co.	13- 3-16	Mtl.	building rig
Pico Dome, No. 1 Hasley Canyon, Los Angeles Co.	14- 3-16	345	suspended
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,517	suspended
Coastline Oil Co., No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	514	suspended
Mesa Pet. No. 1 Newport, Orange Co.	21- 6-10	4,380	gr. sd. drilling
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	975	suspended
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,232	suspended
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,980	suspended
Davenport Oil & Gas Co., No. 1 San Marcos, San Diego Co.	30-12- 8	847	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	1,970	bl. sh. drilling

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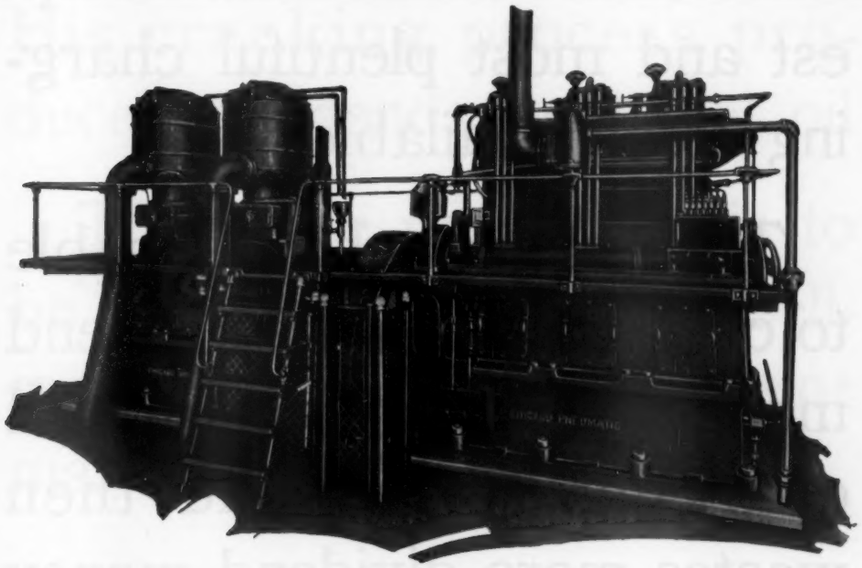

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New Shallow Field in Western Illinois Attracts Attention. Latest Producer Brought in at 479-555 Feet

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, June 1.—The best completion in the Central West fields for the week was found in the new field in St. Clair County, Illinois, where a 220-bbl. producer was found on the Alice Dettenback, Section 28, Sugar Loaf Township. Central Ohio fields had three wells ranging from 65 to 85 bbls., while the other divisions show nothing but average producers. The gas wells were of considerably less volume than former weeks, as seldom one was found showing 1,000,000 feet.

In the old Lima Field of northwestern Ohio there is no activity at any point. In Wood County, George Huffman and others drilled in No. 4 on the Mary Ritzel, Section 23, Perrysburg Township, getting but a 1-bbl. pumper, and George L. Haubert is drilling No. 5 on the Catherine Smith, Section 29, same township. In Bloom Township. Mays & Bushey are drilling a second test on the Dave Biehler, Section 31, and in Liberty Township, C. G. Ogden is drilling No. 1 on the W. M. Mercer, Section 14. In Freedom Township, August Bushman and others abandoned Nos. 7, 8 and 9 John Sieving, and No. 7 Orin W. Fish in Section 21. Same parties pulled out Nos. 13 and 14 on the August Kemmer, Section 16; No. 3 Christ Schuerman, and No. 3 Henry Schawne, in Section 9.

Star & Clark are drilling No. 12 on the Alice Stauffer, Section 6, Eagle Township, Hancock County, and Robert Mitchell, trustee, is drilling No. 3 Alva Beard, Section 16, Biglick Township. and Watts & Harmon are drilling No. 2 on the O. S. Bell 362 acres in Delaware Township in the Wharton Field.

Allen County

Northeast of Lima and between there and Findlay, Neely & Nolan's No. 4 on the Philo Bassett, Section 11, Bath Township, Allen County, is a 10-bbl. pumper, and they are starting No. 5, same lease. H. F. Kelly and others' No. 1 J. A. Copeland, Section 14, same township, pumped 15 bbls. initial. B. L. Carman and others are starting No. 5 on the William H. Hall, Section 13, and C. A. and F. J. Peavy are starting No. 1 on the F. Sandy, Section 12, same township.

John Elias is drilling No. 4 on the Margaret Hiller, Section 3, York Township, Van Wert County. William B. Lawrence, Jr., and others, are drilling a second test on the Floyd L. Purdy, Section 8, Center Township, Mercer County. S. W. Houser is starting a well on his Fruit Farm in the town of Mendon, same county.

Work is picking up in the Tiffin Field of Seneca County. Hulse & Kundtz drilled in a gas well in No. 2 on the A. Haught, Section 30, Pleasants Township, showing for 250,000 feet. In the same township T. F. O'Brien and others are drilling on the Ida M. Rosenberger, Section 31, and J. H. Murphy and Son are drilling on the Charles B. Miller, same section. In Jackson Township, the Columbus-Tiffin Oil & Gas Co. is drilling No. 3 F. H. Ropp, Section 18. In Liberty Township, the Sun Oil Co. and others are drilling No. 5 J. Hunker, Section 28. August Oil Co. is drilling No. 3 A. Flechtner, Section 27, and J. L. Beam is drilling No. 1 G. C. Park, Section 17. Geiger and Shaul are drilling No. 1 J. Serr, Section 26, Clinton Township.

Henry Specht of Bradner, Ohio, is reported drilling a test on the Thomas Boling farm in Thompson Township, Huron County, on a 2,000-acre block of leases south of Bellevue.

CENTRAL OHIO

The week's work in the Central Ohio fields show 26 completions, 6 producers with an initial production of 106 bbls., 8 dry holes, 12 gas wells, 16 new locations and 24 new wells started, a total new development of 40. In Ashland County the Logan Gas Co.'s No. 1-3072 on the M. & L. Wittsmer, Section 20, Green Township, is a very fair gas producer in the Stray sand, but was drilled to the Clinton lime, which proved dry, and it will be produced from the Stray sand. Same company made a location for No. 1-3109 on the James S. Cowan, Section 20. Ohio Fuel Gas Co. has started drilling No. 1-3527 on the J. H. Van Horn farm, Section 23, same township. Same company's No. 1-3462 on the A. L. Reed farm, Section 26, Jackson Township, is a fair gas well, and a location has been made by this company for No. 1-3607 on the J. I. Rumbaugh, Section 21, same township.

In Orange Township, the Kemrow Co. is drilling on the G. and N. Hess, Section 35, same township. In Lake Township, Harmon and Geiger drilled a 5-bbl. pumper in No. 3 on the David Horn, Section 4, and are drilling No. 1 on the Wikoff McFarland, Section 14. The Cumberland Petroleum Co. found a dry hole in a second test on the Peter B. Denny 158 acres, Section 19. At this time Lake Township is the most active portion of the Ashland County Field. In this township Robinson and others are drilling three tests in No. 1 John Smith farm, and No. 1 John Smith No. 2 farm, both in Section 9, and No. 2 on the Henry C. Young, Section 22. Mohican Oil & Gas Co. is drilling a second test on the D. C. Chesrown, Section 3, and the Kemrow Co. is drilling on the W. A. Mosher, Section 8. In Perry Township, Curtis and others' test on the Melvin Devault, Section 29, is a 5-bbl. pumper, and the Logan Gas Co. made a location for a second test on the M. Devault, same section. The Kemrow company is drilling on the Belle Wertman farm, Section 5, Montgomery Township, same county.

Medina County

In Medina County, Glen Fetter and others are drilling on the Glen Fetter farm, Lot 151, Harris Township, and the Ohio Fuel Gas Co. is drilling No. 2-3580 on the Les A. Goldner farm, Section 33, Lafayette Township.

In Lorain County, Carlisle Township, the Ohio Fuel Gas Co. has a light gas well in No. 1-3485 on the M. W. Rowland farm, Lot 23, and made a location for No. 1-3603 on the Paul Roling, same lot, as well as a location on the Frank K. Nobles, Lot 11, Grafton Township.

In Wayne County, the Ohio Fuel Gas Co. found an average sized gas well at No. 1-3479 on the Sarah E. Lowery, Section 13, Congress Township, at a depth of from 2,851-58 feet, and made a location for No. 1-3606 on the M. Fulton farm, same section. In Chester Township, same company's No. 3-3459 on the Sarah Landis, Section 9, was a dry hole. Harmon and George are drilling on the J. M. Wenger farm, Section 18, same township.

In Holmes County, the Ohio Fuel Gas Co.'s No. 1-3372 on the Thomas Horn, Lots 13-18, Hardy Township, had only a rainbow showing of oil and goes as a dry hole.

In the Cleveland Field of Olmstead Township, Cuyahoga County, L. M. McGrath's test on the George Pilgrim farm, Lot 30, is a duster.

In Richland County, the only new development is a location made by the Logan Gas Co. in No. 1-3108 on the Harvey Snyder farm in Worthington Township.

In Knox County, Brown Township, the Upham Gas Co. has an average gas well at No. 6 on the R. J. Kunkle farm, Section 6, and I. E. O'Hail has a very nice gas well in a second test on the R. P. Hipp, Section 21, Jefferson Township. H. E. Perkins is drilling on the Reno Blubaugh, Section 19, same township. Upham Gas Co. made a location on the William Hoovler, Section 1, Monroe Township, same county.

In Coshocton County, Newcastle Township, Bell Brothers drilled a dry hole at No. 4 on the Commercial National Bank Co.'s land, Section 19, at a depth of from 875 to 892 feet. Hulse & Kundtz made a location on the Cordia Speckman and others, Section 4, Perry Township, and the Pure Oil Co. made a location on the Arthur Eppley in Clark Township. The Ohio Oil Co. is drilling No. 2 on the Robert Rhode, same township.

In Summitt County, Copley Township, the Wiser Oil Co. found a good gas well at a second test on the John F. Hankey, Section 12, Copley Township.

Licking County

In Licking County, Perry Township, the Whitehill Oil Co.'s No. 11 on the A. A. Ashcraft, Section 9, is a 10-bbl. initial producer from 627 to 641 feet. Sterl Brown struck an average sized gas producer in No. 2 on the Athel Frost, Section 14, at from 715 to 720 feet and is starting No. 3 on the same lease. Heisey Gas Co. is drilling a second test on the Joseph Davis heirs, Section 7, Licking Township.

In Muskingum County, Hopewell Township, the Hope Construction & Refining Co.'s No. 4 is reported at 75 bbls. initial at a depth from 3,090 to 3,142 feet. Athey company made a location on the J. O. Hall, Sections 14-15, Union Township. The Wehrle company made a location on the Melvin R. and Etta Emlerl, Section 17, Highland Township, L. E. Burley made a location on the Bowden Brothers, Section 16, Perry Township.

Athens County reported no completions, but has some new work starting. Ohio Fuel Gas Co. is drilling No. 2-3542 on the B. M. Carpenter in Fractional Section 2, Ames Township, and No. 1-3562 on the O. E. Woolley, Section 5 and 6. Kiggins and others are drilling No. 3 O. M. Lovell, Section 3, same township. In Berne Township, the Ohio Fuel Gas Co. is drilling No. 1-3538 on the George A. Harris, Fractional Section 5. Farr and Cody are drilling on the Myrtle Runnion, Fractional Section 36, Carthage Township. In Lodi Township, C. W. Nuzum and others are drilling on the Rosa Josten, in Fractional Section 12. Gross and Freebault made a location for a second test on the G. H. and J. Kern, Section 20, Athens Township.

In Meigs County, Sutton Township, the Southern Ohio Petroleum Co. has a light gas well on the Frank Winebremer, Section 36, same township, in the upper Berea sand at from 1,726 to 1,745 feet; total depth of hole, 1,748 feet. Tyree and others' second test on the Martin Ebersbach, Section 19, pumped 1 bbl. from the upper Berea sand at from 1,937 to 1,847 feet; total depth 1,864 feet. The Preston Oil Co.'s No. 3-1300 on the Emma Williams, Section 24, same township, is reported to have produced 8 bbls. of oil along with an average gas production from the upper Berea sand at from 1,786½ to 1,807½ feet; total depth, 1,813½ feet.

Jackson County

In Jackson County, Lick Township, the Ohio Fuel Gas Co.'s No. 1,3470 on the Lottie L. Long, Lot 34, was dry hole in the Clinton lime from 2,539 to 2,551 feet and found the top of the Medina at 2,586 feet and drilled to a total depth of 2,587 feet. Penn Ohio Gas Co. made a location for No. 6 on the Leo Evans, Lot 35, same township. Ohio Fuel Gas Co. brought an average gas producer in No. 3-335 on the C. W. Haslett, Section 1, Coal Township, in the Clinton formation, from 2,650 to 2,666 feet; total depth 2,669 feet. Same company is drilling No. 1-3452 on the Nannie Shook and others' property, Section 33.

In Vinton County, Knox Township, the Co-operative Oil Co.'s No. 3 on the Garfield Brooks, Section 3, pumped 10 bbls. from the Berea sand at from 1,150 to 1,157 feet.

In Mahoning County, the Penn Crude Oil Co.'s test on the H. and A. Miller, Section 5, found the top of the Clinton lime at 5,128 feet and at last report was down 115 feet in that formation to a total depth of 5,240 feet and still going down in hopes of finding something worth while.

In Fairfield County, Rush Creek Township, the Ohio Fuel Gas Co. has an average gas volume in No. 1-3411 on the Cora L. Shaw, Section 5, at from 2,595 to 2,613 feet. In Pleasants Township, same county, the City Natural Gas Works' No. 3 on the John Mertz, Sr., farm, Section 23, is a light gas producer at from 1,908 to 1,913 feet.

In Guernsey County, Wheeling Township, Blackstone and others' No. 1 William Miles, Section 20, developed a heavy dose of water in the Lima sand at from 3,675 to 3,678 feet. The top of the Niagara was found at 3,510 feet.

Ashland County

In Ashland County, Perry Township, the Kemrow company has a dry hole in a test on the A. and E. Fridline farm, Section 33.

In Licking County, Hanover Township, the Everette Gas Co. has a 15-bbl. producer in a second test on the William Shipley farm, Section 11.

In Guernsey County, Jackson Township, the Ohio Fuel Gas Co.'s No. 9-3531 on the W. C. McCourt, Section 15, is reported a duster.

In Morgan County, Penn Township, the Ohio Fuel Gas Co. has a light gas well in No. 1-3516 on the W. B. Miller farm, Section 16, in the lower Berea sand at from 1,527 to 1,548 feet; total depth 1,552 feet. Henning Brothers are drilling No. 21 on the C. J. Kennard, Section 2. In Marion Township, the Kemrow company is drilling on the F. and D. Dawson, Section 30, and the Farm Oil Co. is drilling No. 2 Mable C. Rabberman, Fractional Section 13.

In Licking County, Perry Township, McClay Brothers drilled in an 85-bbl. initial producer on the Emmett Hoover, Section 3, and the Hope Construction & Refining Co.'s second test on the Sarah Rector farm, which was dry at from 2,810 to 2,855 feet.

The Hope Construction & Refining Co. drilled in No. 6 on the W. E. Helphrey, Section 6, Jackson Township, Muskingum County, for an initial production of 65 bbls.

INDIANA

Only two completions were reported from Indiana, and both are in Washington Township, Gibson County, where the

(Continued on Page 200)

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LUDLUM STEEL CO. *Watervliet, N. Y.*

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The resistance of Enduro KA2 to many chemicals and reagents is indicated by the following condensed table:

	Temperature Degrees C.	*Loss in Grams Per Hour Per Square Meter KA2*
Pure water and Co2	20	.03
2.5% Sodium Chloride (Salt) solution	20	.00
1/10 normal Sulphuric acid .	20	.05
1/10 normal Hydrochloric acid	20	.15
1.5% Sulphurous acid	20	.00
Sulphurous acid plus 1% Sulphuric acid	10	.05
Sulphurous acid at a pressure of 20 atmospheres	180	110.00
Mixture of steam, air and sulphurous acid at 400°C.(725°F.)	20	2.5

Rate of attack will vary with variations in operating conditions.

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Gray County Gain Panhandle Feature

Increase of 16,549 Bbls. Swells Panhandle Total to 81,308 Bbls. One Well Makes 14,275 Bbls., Another 5,008 Bbls.

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 3.—An increase of 16,549 bbls. in Gray County was the feature of the week in the Panhandle. This jump in Gray County boosted the total output of the Panhandle district to 81,308 bbls., or an increase of 17,363 bbls. over the previous week.

The Texas Company's No. 1 Cook-Faulkner, in Section 29, Block B-2, H. &G.N. Survey, was one of the big wells that swelled Gray County's production. It topped the pay at 2,855-65 feet and was completed at 2,865 feet flowing 5,008 bbls. in 24 hours.

Operators Oil Co.'s No. 7 Jackson, in the NE cor., Section 88, Block B-2, same survey, also helped boost the production in Gray County. It came in with an initial production of 14,275 bbls. the first 24 hours from a total depth of 2,963 feet, after topping the pay at 2,960 feet. It was also gauging 3,000,000 feet of gas. Sun Oil Co.'s No. 1 Purviance was not to be overlooked when it came in making 918 bbls. of better than 41 gravity oil in 24 hours from pay at 2,867 feet. Total depth was 2,914 feet.

The Texas Company got another good well in its No. 1 Purviance, Section 61, same section as the Sun well, Block B-2, H.&G.N. Survey. Topping the pay at 2,837 feet it was shut down at 2,914 feet making an initial production of 725 bbls. in 24 hours.

To offset these good Gray County wells, in Hutchinson County the Marland Production Co. brought in its No. 1 J. M. Sanford in the SE cor. N half, Section 79, Block 46, H.&T.C. Survey. For five hours it flowed at the rate of 100 bbls. an hour from pay which was encountered at 2,782 feet. It was shut down at 2,785 feet only 3 feet in the pay.

The McMan Oil & Gas Co. also brought in a good producer in Gray County in its No. 1 Saunders at a total depth of 2,583 feet after getting the pay from 2,525-70 feet. It came in making an initial of 1,400 bbls. of oil and 11,000,000 feet of gas.

The Texas Company brought in a heavy gasser in its No. 2 Gordon, Wheeler County, when it blew in making 30,000,000 feet of gas from a total depth of 1,884 feet, only 4 feet in the gas sand.

Wichita Falls District

Archer County scored 17 completions for the week, with 10 of them "dusters," the others being small producers making from 9 bbls. in the smallest to 113 bbls. in the best. Wilbarger County also checked up 15 completions, 6 being dry holes, the others producing. Young County counted nine completions, and Wichita County nine, there being no large outstanding wells completed in either of these two counties.

Archer County completed its largest well in two years in the Humble Oil & Refining Co.'s No. 2 A. M. Kunkle, 150 feet west and 510 feet south of the northeast corner of B.B.B.&C.R.R. Survey, Abstract 51, approximately 4 miles northwest of Olney. It contacted the sand from 1,178-88 feet and was shut down at the latter depth swabbing 500 bbls. the first 24 hours.

While the Panhandle district registered a great increase during the week, the Wichita Falls district chalked up only a gain of 43 bbls., all the counties holding to approximately the same daily averages as the week before. The Ranger district did not increase much, only 418 bbls., with Brown, Coleman and Callahan each counting a little in this amount.

Coleman County recorded a good producer when the Eastland Oil Co. brought in its No. 3-B Morris at a total depth of 2,002 feet after encountering gas sand at 1,987-91 feet where 8,250,000 feet of gas was gauged. Oil sand was struck at 1,991 feet and the well flowed 400 bbls.

Ranger District

The Ranger district was rather quiet, there being but few completions, with none of special note. Erath County got another gasser in the Associated Producers Co.'s No. 2 Cary at a total depth of 3,250 feet. Pay was hit at 3,235-50 feet, and the well shot with 60 quarts from 3,210-50 feet, producing an initial gauge of 3,214,380 feet of gas. Eastland County had five completions with three dry holes and one small producer in Conway Brothers and Champion's No. 3 Simmons which made 30 bbls. from 1,136 feet, after topping the pay at 1,131 feet.

WICHITA COMPLETIONS
Week ending June 1
Archer County

Fain-McGaha Oil Corp.'s No. 1 Taylor was drilled to a total depth of 1,490 feet, topped the pay at 1,486 feet and had an initial production of 135 bbls. oil and 60 bbls. water. Gwynn-Boyd Drilling Co. and others' No. 2 Thompson was dry and abandoned at 1,597 feet. Hiland Oil Co.'s No. 1 Birdwell was dry and abandoned at 1,852 feet. Hines' No. 3 Wallace was dry and abandoned at 1,785 feet. Identity Oil Co.'s No. 1 Parrish Brothers was dry and abandoned at 1,304 feet. Petroleum Producers Corp. and others' No. 1 Coleman was dry and abandoned at 1,575 feet. Shappell Oil Co.'s No. 7 Jackson was drilled to a total depth of 1,803 feet, topped the pay at 1,794-1,803 feet and had an initial production of 25 bbls. oil, 40 per cent water. Wolf & Son's No. 1 Campbell was dry and abandoned at 800 feet. Burns' No. 1 Slopansky was dry and abandoned at 1,553 feet. Continental Oil Co.'s No. 2 Logan was drilled to a total depth of 1,129½ feet, topped the pay at 1,113 feet and had an initial production of 9 bbls. Its No. 2 Richardson had an initial production of 205 bbls. at 1,147-52 feet. Hines' No. 1 Slaughter was dry and abandoned at 1,481 feet. Humble Oil & Refining Co.'s No. 2 Falls Co. fee was dry and abandoned at 1,223 feet. Petroleum Producers Co. and others' No. 3 Phillips was drilled to a total depth of 1,185½ feet, topped the pay at 1,181 feet and had an initial production of 30 bbls. Prairie Oil & Gas Co.'s No. 2 Richardson was drilled to a total depth of 1,173½ feet, plugged back to 1,172 feet, topped the pay at 1,168 feet and had an initial production of 16 bbls. Rose's No. 1 Campbell was dry and abandoned at 1,350 feet. Smith's No. 3 Prideaux was drilled to a total depth of 731 feet, topped the pay at 728 feet and had an initial production of 13 bbls.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending June 3

Company, well, farm, name, section and block—	Remarks—
CARSON COUNTY	
Champlin Ref. Co.'s No. 3 McConnell, 330 ft. S and E of NW W½ NW, Sec. 67, Blk. 4, L&G.N.R.R. Sur.	Drlg. 2,305 ft.
Delmar Oil Co.'s No. 4 Nail, 330 ft. from N line, 330 ft. from W line of W½ SE, Sec. 198, I.&G.N., Blk. 3	Rigging up.
Empire G. & F. Co.'s No. 1 Armstrong, 330 ft. from S line and 330 ft. from E line of NW SE, Sec. 31, T.T.R.R. Sur.	Drlg. 3,350 ft.
Empire G. & F. Co.'s No. 15 Burnett, C NW, Sec. 4, Blk. 5, I.&G.N.R.R. Sur.	S.D. 2,590 ft.
Empire G. & F. Co.'s No. 16 Burnett, C NW cor. Sec. 104, Blk. 5, I.&G.N.R.R. Sur.	Drlg. 2,130 ft.
Gulf Prod. Co.'s No. 1, 330 ft. S and W NE cor. NW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,470 ft.
Empire G. & F. Co.'s No. 5 M. P. Co.'s "A," 330 ft. S and E of NW cor. SE SW, Sec. 91, Blk. 4, I.&G.N. Sur.	Drlg. 1,820 ft.
Empire G. & F. Co.'s No. 1 Deahl, 660 ft. from N line, 660 ft. from W line, Sec. 21, Blk. Y-2	Bldg. rig.
Gulf Prod. Co.'s No. 6 Noel, 330 ft. S and 1,320 ft. E of NW cor. SW, Sec. 198, Blk. 3, I.&G.N. Sur.	Oil 3,170-75 ft; 58,000,000 ft. gas; T.D. 3,248 ft; swbd. 243 bbls. in 14 hrs.
Stubblefield et als' No. 1 Garner, 330 ft. from S and E lines SE, Sec. 104, Blk. 4	Rigging up.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. NW NE cor. Sec. 79, Blk. 4, I.&G.N. Sur.	Drlg. 2,880 ft.
Magnolia Pet. Co.'s No. 7 fee, 990 ft. from W line, 890 ft. from S line SE, Sec. 91, Blk. 4, I.&G.N. Sur.	Rig.
McConnell O. & G. Co.'s No. 1 McConnell, 330 ft. from N line, 330 ft. from E line W½ NE, Sec. 65, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 1,650 ft.
Midwest Explt'n. Co.'s No. 1 Cooper, 330 ft. each way from SE cor. W½ NW, Sec. 5, Blk. 9, H.&G.N. Sur.	Run. 12-in. csg. 395 ft.
Midwest Explt'n. Co.'s No. 2 Cooper, 990 ft. from S line and 330 ft. from W line W½ NW, Sec. 5, Blk. 9, I.&G.N. Sur.	Rigging up.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44	2,000,000 ft. gas 2,752-62 ft; drlg 3,000 ft.
Ryan Oil Co.'s No. 3 Black, 990 ft. from S line, 330 ft. from E line NE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Rigging up.
Ryan Oil Co.'s No. 4 Block, 990 ft. from N line and 330 ft. from E line NE, Sec. 111, Blk. 4, I.&G.N. Sur.	Bldg. rig.
Skelly Oil Co.'s No. 13 Schafer, 330 ft. N and E of SW cor. Sec. 88, Blk. 4, I.&G.N. Sur.	Drlg. 2,910 ft.
Skelly Oil Co.'s No. 14 Schafer, 330 ft. S and W of NE cor. Sec. 68, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,715 ft.
Skelly Oil Co.'s No. 15 Shafer, 330 ft. from S line and 330 ft. from W line NE, Sec. 198, Blk. 3, I.&G.N.	Cellar.
The Texas Corp.'s No. 1 Quinn, 330 ft. from S line and 330 ft. from W line SE, Sec. 7, Blk. 9, I.&G.N. R.R. Sur.	C.O. 2,904 ft.
Timmis et als' No. 2 Garner, 330 ft. from N line and 330 ft. from E line SW SW, Sec. 113, Blk. 4, I.&G.N.	Rigging up.
Travis et als' No. 1 D. A. Harrel, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	250,000 ft. gas from 3,520-30 ft; drlg. 3,575 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Drlg. 4,900 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.
CHILDRESS COUNTY	
C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	S.D. 4,340 ft.
COCHRAN COUNTY	
Marland Prod. Co.'s No. 1 Slaughter-A, 330 ft. from W and 430 ft. from S lines, League 130, Carson County School land	Fish. 1,845 ft.
COTTLE COUNTY	
Explt'n. Co.'s No. 1 Richards	S.D. 3,535 ft. for csg.
Explt'n. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur.	S.D. 3,227 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Blk. H, W.&N.W. Sur.	Drlg. 4,025 ft.
DONLEY COUNTY	
Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 23, Blk. E, D.&P.R.R. Sur.	Rigging up.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur.	Caving 2,350 ft.
GRAY COUNTY	
Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur.	2,000,000 ft. gas from 2,685-2,800 ft; drlg. 2,815 ft.
Amagray Oil Co.'s No 2 Chapman, 330 ft. S and W NE cor. W½ SW, Sec. 9, Blk. 26, H.&G.N. Sur.	Drlg. 2,100 ft.
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur.	Drlg. 2,690 ft; 30,000,000 ft. gas from 2,688-90 ft.
Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½, Sec. 9 Blk. 1, A.C.H.&B. Sur.	S.O. 2,820 ft; show gas 2,836 ft; S.O. 2,980 ft; plugged back to 2,883 ft. to shoot; T.D. 3,110 ft; shot 150 qts. from 2,800-60 ft.

(Continued on Page 119)

ESTIMATED DAILY AVERAGE PRODUCTION JUNE 1

North Texas

Panhandle district—	
Carson County	6,725
Hutchinson County	25,964
Gray County	45,894
Moore County	1,840
Potter County	10
Wheeler County	875
Total this week	81,308
Total last week	63,945
Increase	17,363
Wichita Falls district—	
Archer County	17,255
Baylor County	63
Clay County	584
Cooke County	5,988
Jack County	2,697
Haskell County	175
Montague County	6,782
Throckmorton County	638
Wilbarger County	26,907
Young County	6,904
Wichita County	26,652
Total this week	94,545
Total last week	94,502
Increase	43
Ranger district—	
Brown County	7,952
Callahan County	3,901
Coleman County	4,074
Comanche County	1,177
Palo Pinto County	354
Ranger	5,330
Shackelford County	13,188
Stephens County	6,545
Total this week	42,521
Total last week	42,103
Increase	418
Grand total this week	218,374
Grand total last week	200,550
Increase	17,824

Clay County

American Refining Properties' No. 1 was dry and abandoned at 1,010 feet. Bain's No. 5 Culbertson had an initial production of 2½ bbls. at 390-392 feet. Mid-Continent Holding Co.'s No. 1 Stine

(Continued on Page 83)

Interesting Test Southwest of Yates

Estimated 3,000,000 Feet of Sweet Gas. Proration Changes in Howard and Yates. Decreases in Winkler and Yates Potentials

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 3.—One of the most interesting features of the week in the West Texas district was the encountering of an estimated 3,000,000 feet of sweet gas at 1,320 feet in sandy lime, in Buell & Hagan's No. 1 University, in the SE Section 36, Block 18, University lands, about 20 miles southwest of the Yates Pool. Elevation of this well ran 2,760 feet, and salt was topped at 940 feet. This test is 2 miles northwest of Buell & Hagan's No. 1 McKenzie which was abandoned at 2,495 feet with a hole full of sulphur water. That test topped the salt at 1,170 feet and the lime at 2,236 feet with no shows of any importance. Three miles to the east of Buell & Hagan's No. 1 University, the Transcontinental Oil Co. is drilling No. 2 University in the C SW SW, Section 9, Block 17, University lands. The last report on this well showed it drilling at 2,280 feet with no shows. The Transcontinental Oil Co. is also drilling a deep test 7 miles northwest of the Buell & Hagan well, in Section 18 of the same block. At present this well is fishing tools at 4,312 feet. It also had a gas show, but not nearly as large as in the Buell & Hagan well now shut down at 1,320 feet where the gas was encountered.

Fort Stockton Well

Phillips Petroleum Co.'s No. 1 Courtney (Pryor), located in Section 78, Block OW, T.&M. Survey, 9 miles northwest of Fort Stockton, which encountered a shallow sand at 1,347 feet and was completed temporarily at 1,367 feet, about 10 days ago, started dropping off to around 98 bbls. daily after pumping approximately 200 bbls. daily for a few days average. Rods and tubing were pulled and deepening was commenced, going through the pay sand at 1,372 feet with no increase in production. At present it is drilling at 1,402 feet in anhydrite.

This well opened the fourth pool in Pecos County, and much interest was displayed in the strike, but the later showing rather dampened the spirits of those interested, although the Phillips Petroleum Co. has made an offset location in the same section. This location is 690 feet west and 150 feet north of No. 1 Courtney.

In the Pecos Valley Pool, Black's No. 1 Pecos Valley Oil Co., 2,310 feet from the southeast and 1,650 feet from the southwest lines of Section 22, Block 10, H.&G.N. Survey, same section as the Pecos Valley's No. 1 fee, the discovery well, a 30-quart shot was placed from 1,618-38 feet. The well was cleaned out to the bottom after the shot, and oil rose in the hole 400 feet in 12 hours. It swabbed 15 bbls. in three days, and now the company is putting it on pump. Top of the pay of this test is 1,618 feet, total depth is 1,648 feet. This well is only a half mile from the discovery well, to the southeast.

Howard County Proration

The A. F. Oil Co.'s No. 1 Scrivener was an important test of the northwest extension of the Howard County Pool, 2,440 feet from the north and west lines of Section 12, Block 332s, and 4,000 feet northwest of the Howard Oil Co.'s No. 1 Abrams which is producing around 1,000 bbls. daily from 2,300 feet, but the former test proved a dry hole at 2,502 feet where it was abandoned not having picked up lime or pay above that depth. This rather defines the pool on the northwest, although the Pure Oil Co.'s No. 1 Scrivener in Section 4, an offset to the Howard County Oil Co.'s No. 2 Scrivener, will be an interesting test north of the producers, to see if the pay extends in that direction instead of farther west as the A. F. Oil Co. figured.

The Howard County Advisory Committee has voted to prorate all wells above 200 bbls. potential production, except twin wells of the same lease, on a basis of 60 per cent of their potential. It also voted to allow shooting of all wells over 100 bbls. in 2,200 and 2,500-foot pay horizons. The advisory committee is made up of M. B. Sweeney, newly elected chairman who succeeded Robert T. Piner of Big Spring, who resigned on account of business engagements; J. S. Cosden of the Cosden Oil Co.; Frank T. Pickrell of the Group No. 1 Corp. and Texon Oil & Land Co.; J. Kilchenstein of the Magnolia Petroleum Co.; Arno Behnke of the Amerada Petroleum Corp.; George B. Morgan of the American-Maracaibo Oil Corp; and George E. McIntyre of the Marland Production Co. This was a call meeting of the advisory committee. E. E. Andrews is umpire of the Howard County Pools.

Water Encroachment

Water is rapidly encroaching in the Howard County pools, engineers showing only 15 wells in the Roberts area not showing at least 1.6 per cent water. In the Henshaw-Settles area 7 out of 11 wells are making at least 2 per cent water.

The World Oil Co.'s No. 1-C McDowell, the first pool opener in Glasscock County, in the NE cor. of Section 21, Block 34, T-S, T.&P. Survey, is still holding up under daily pumping to 250 bbls., and the World company is to make another test 660 feet north and west of the discovery well, the location to be 990 feet from the north and 2,310 feet from the west line of Section 21, in the same section and block. The Houston Oil Co. will make a test about 4 miles east and a little north of the World's I-C McDowell, in the NW cor. of the N half of the NE of Section 30, Block 33, 2-S, T.&P. These two will be interesting tests in this area, proving acreage which the discovery well opened, and testing the area to the east and north towards the production in the Howard County extension. The Humble Pipe Line Co. has its 4-inch line connected to the World well, from its pumping station south of the Roberts Pool in Howard County, and will take the production from this well.

Texon's 1-B University, the world's deepest well, set another peak on June 1 when it rose to 2,590 bbls., the last previous peak being 2,582.5 bbls.

Gibson & Johnson's No. 1 Reed, in the SE of Section 47, Block 30, 1-N, T.&P. Survey, eastern Howard County on the Mitchell County line, attracted a good many during the week when it encountered pay a 2,688 feet, and after standing four hours bailed 2½ bailers of oil. The nearest production is on the California Foster lease, 1½ miles southeast across the line in Mitchell County. This lease is in Section 6, Block 29, 1-S, T.&P. Survey. The nearest test to the Gibson-Johnson well is the old General Oil Co.'s No. 1 Read which was abandoned as a dry hole at 3,285 feet. This is 1 mile north of the Gibson-Johnson strike. L. C. Harrison is drilling a test on the Dodge estate, 3 miles southwest in Section 9. This is being watched closely. At present the Gibson-Johnson well cannot be spoken of as a producer, but a test will be made to determine whether this immediate pay will bring out a commercial producer, or whether they will have to drill deeper. Nothing definite can be said about the test now, but it will be watched for developments.

Garza County Tests

Garza County also attracted interest when the Emeral Oil Co.'s No. 1 J. S. Reed, 990 feet west and 330 north of the SE cor. of Section 135, Block 5, H. &G.N. Survey, topped a pay at 2,527 and was shut down at 2,546 feet with 300 feet of oil in the hole. This test is to be shot to determine the extent of the pay, and if it will make a commercial producer from this pay and depth. Other Garza County tests have had similar shows, probably not quite so large, and they failed to produce in commercial quantities, but this well has a likely possibility of making something. After it is shot and cleaned out, better knowledge as to its merits can soon be obtained.

Kimbrough & Tuel's No. 1 J. M. Nutt, located 1,920 feet from the north line and 200 feet from the west line of Section 712, Ford Willig Survey, was shut down at 1,420 feet after it topped a pay at 1,318 feet and filled up 500 feet of fluid, 40 per cent water. This is another good showing for Irion County, a county which has had several good showings in different tests, three of the tests making small producers, none being of commercial size.

The fourth pay horizon in Jones County, the King sand, has brought a small producer in the Phillips Petroleum Co.'s No. 1 P. L. Walters which encountered this pay at 2,856-66 feet, being shut down at the latter depth. The well has swabbed only 30 bbls., but is now being put on pump, looking good for about 15 or 20 bbls. daily, according to men in the field. This test is 1 mile north of the Noodle Creek Pool, in the NW of Section 16, T.&P. Survey.

Test in Culberson County

The accompanying plat shows the location of Scott & Dittman's No. 1 Miller Brothers test, in the N half of Section 1, Block 97, Public School Lands, Culberson County. This test is on what is known as the Paint Horse structure which is said to cover Blocks 97, 100, 101 and 96, Public School Lands, the geology worked by Doctor Beede, formerly of the Dixie Oil Co., now in the geological department of the University of Indiana. Owners of leases in this area are the Dixie Oil Co., Sun Oil Co., The Texas Company, Humble, and others.

Saturated sand was encountered in this well from 1,285 to 1,330 feet, and another show was struck at 1,700 feet. After the test had stood for some time, and the derrick had been destroyed, the operators rebuilt derrick and resumed drilling. When they went back in the hole, after standing idle during an indefinite period, 200 feet of oil was found in the hole. This was cleaned out and test made, but further testing and deepening failed to produce any appreciable quantity of showings. It is now standing at 3,500 feet.

Yates Outlet Increased

The Advisory Committee of the Yates Pool met in Fort Worth and voted to request the Railroad Commission to increase the outlet of the Yates Pool

(Continued on Page 160)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended June 3

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Mid-Continent Oil & Gas Co.'s No. 1 Fisher, 1,320 ft. N and 200 ft. E of SW cor. Sec. 5, Blk. A-36	Top salt 1,720 ft.; drlg. 3,030 ft.
BORDEN COUNTY	
Gibson & Johnson's No. 1 Higginbotham, middle of S line of Sec. 8, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	S. D. 3,757 ft.
Moncrief et al's No. 1 Munger, C of SW Sec. 14, Blk. 31	Moving in material.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F.	Drlg. 1,885 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Rigging up.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 2,000 ft.
Johnson & Weekley's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Drlg. 1,092 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Oil 1,580 ft.; drlg. 1,725 ft.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 8, Blk. W, T.&P. Sur.	Spudded and shut down.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Drlg. 2,841 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Pay 3,755-56 ft.; 6⅝-in. casing set 3,451 ft.; fishing at 3,785 ft.
Ray E. McCamey et al's No. 1 McCutchen, 2,300 ft. S and 785 ft. W of NE cor. of T. J. Hines Sur. No. 4	Drlg. 2,320 ft.
CONCHO COUNTY	
Duffy et al's No. 1 Gilliam, 1,520 ft. N and 1,120 ft. W of SE cor. Sec. 21, Blk. 10, H.&T.C.R.R.	Rigged up.
Fred Spratt's No. 1 Bryson, Sec. 30, 150 ft. from N and W cor.	Location.
Jones & Leiner's No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Drlg. 1,297 ft.
CRANE COUNTY	
Duffey et al's No. 5 Cowden, 200 ft. each way from S and E lines Sec. 17, Blk. X, C.C.S.D.&R.G.N.G.	Top salt 970 ft.; drlg. 2,909 ft.
Gulf Prod. Co.'s No. 61 McElroy, Sec. 200, Blk. F, 660 ft. E of 53	Shut down 2,916 ft.; shot 200 qts. from 2,760 to 2,898 ft.; swabbed 30 bbls. in 24 hrs.; cleaning out.
Gulf Prod. Co.'s No. 63 McElroy, 2,762 ft. S and 2,310 ft. E of NW Sec. 206, Blk. F, C.C.S.D.&R.G.N.G.R.R. Sur.	Drlg. 2,510 ft.
Gulf Prod. Co.'s No. 7 Waddell, Sec. 10, Blk. B-23, 2,640 ft. from S, 330 ft. from W	Top salt 1,108 ft.; slight show gas 2,285 ft.; drlg. 2,750 ft.
Tidal Oil Co.'s No. 9 University-I, 1,320 ft. from E, 771 ft. from S Sec. 43, Blk. 30	Location.

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ROCKY MOUNTAIN AREA

(Continued from Page 69)

28-19-30, topped the salt at 385 feet and is drilling at 945 feet.

In Chaves County, the Transcontinental Oil Co.'s No. 1 Robbins, SE cor. Section 1-14-28, is drilling at 3,075 feet in gray lime. Sloan & Smith's No. 1 Lovern, C SE Section 4-3s-35, in Roosevelt County, is drilling at 1,815 feet in red sandy shale. In DeBaca County, the Transcontinental Oil Co.'s No. 1 McWhorter, SW NW Section 6-3s-22, is drilling at 4,115 feet in anhydrite.

Rattlesnake Dome

In the northwestern part of the state the Continental Oil Co.'s No. 17 Santa Fe, Section 2-29-19, on the Rattlesnake Dome, is still running 2½-inch tubing with a packer to shut off water above the pay. The work is rather difficult on account of the heavy pressure, the oil and water going over the top at the rate of several thousand bbls. a day, of which 500 to 600 bbls. is oil. Total depth is 6,774 feet. The Angel Peak Oil Co.'s No. 1 Garland, NE NE Section 11-28-11, Kutz Canon district, succeeded in putting out the fire last Sunday and is repairing the damage. A standard rig will be erected and water shut off before resuming. The Milwaukee-New Mexico Syndicate's No. 1 Beardsley, C NE Section 30-28-11, is bottomed at 1,892 feet after cutting 105 feet of Picture Cliff sand and going 29 feet into the Lewis shale. Though this test is running about 169 feet higher than the nearest gas well, the sand was dry except for a little gas in the top, showing neither oil nor water.

In Rio Arriba County, Jarvis, Bennett and others' No. 1, NE SW Section 8-31-1w, near Dulce, ran into a pocket of gas in the Mancos shale at 1,600 feet. It is still 300 to 400 feet above the Dakota. There was also a light show of oil.

In McKinley County, H. L. Williams and others are moving a standard rig to Section 21-18-8, in the Hospah district, where, it is stated, a Pennsylvanian test will be drilled.

UTAH

In Utah the Continental Oil Co.'s No. 1 Boundary Butte, Section 22-43-22, in San Juan County, which last week was reported making 15,000,000 feet of gas from a total depth of 5,115 feet, is drilling ahead slowly after cementing the bottom of the hole to prevent caving, and at last reports was bottomed at 5,130 feet and showing no material change. At 5,119 feet the drill went into shale. The Boulder Knoll Oil & Gas Co.'s No. 1 Endter, NW NW Section 17-34-25, near Monticello, has resumed at a total depth of 2,640 feet after being idle for almost a year. The 6¼-inch is being underreamed and lowered to bottom to make a water shutoff. The well has been making considerable gas through the water during the interval in which it was shut down. In Wayne County, the Phillips Petroleum Co.'s No. 1 Shick, Section 16-27-16, failed to stop caving at 4,985 feet with cement and is recementing. The Utah Southern Oil Co.'s No. 1-A J. L. Shaffer, Section 36-26-20, Cane Creek Dome in Grand County, is drilling at 3,111 feet after setting the 6¼-inch at 3,096 feet to shut off water. Drilling since resuming has been in shale, gypsum and anhydrite. In Uinta County, the Western Venture Corp.'s No. 1 Spahr, Section 8-5s-21, Dog Valley, is underreaming the 8¼-inch to bottom at 1,210 feet for a water shutoff, and its No. 1 Krumvieda, Section 6-5s-21, is pulling the 4¾-inch to straightream to bottom at 1,515 feet. It was set with a packer at 1,296 feet. Maud Ellen Oil Co.'s No. 1, Section 28-3s-21, Neal Dome, is drilling at 1,510 feet after being idle for several weeks awaiting arrival of a new cable. The Crescent Oil Syndicate's No. 1 McCarthy, SW Section 27-21-19, Grand County, landed the 8¼-inch on bottom at 1,403 feet (corrected).

COLORADO

The Five Square Oil & Gas Co.'s No. 1-A State, SE cor. Section 16-4n-69, on the Berthoud Dome, in Larimer County, 20 to 25 miles south of the Fort Collins-Wellington producing fields, supplied the principal news for Colorado. The well entered a limestone formation at 3,651 feet and began making gas. At 3,655 feet, with the 6¼-inch landed on top of the lime and a control head in place, the gas was increasing and probably amounted to around 1,000,000 feet with considerable pressure back of it. The hole is believed to be bottomed 10 to 12 feet off the Muddy sand, the principal producing horizon in the Fort Collins-Wellington district. The Berthoud Dome was one of the most promising of the front range structures when the Midwest Refining Co. commenced drilling its No. 1 State, NW Section 16-4n-69, in 1925, following the discovery at Fort Collins. The Midwest well had 5,000,000 feet of gas at 3,135 feet, and a show for 10 bbls. of oil and 3,000,000 feet of gas at 3,700 feet in the Muddy, followed by water in the Dakota and Lakota, and was abandoned at 4,031 feet. It was believed the Midwest well could have been made a producer, but the quantity of oil was not sufficient to justify the extensive drilling campaign with high royalties which the leases called for.

The Five Square company then went into the district in 1926 and drilled its No. 1 Fagin, NE SE NE Section 17-4-69, just west of the Midwest well. It had about 1,000,000 feet of gas in sand at 3,273-3,312 feet in the Nio-Benton, or Frontier, both names being given to the horizon. It did not go to the Muddy. The company then drilled its No. 1 State in the SW cor. Section 16, but lost the hole at 2,640 feet and skidded the rig and started No. 1-A State. The well appears to be running higher than the first wells drilled and holds out considerable promise of redeeming the favorable opinion of the structure originally held.

Wellington Field

In the Wellington Field, the Continental Oil Co.'s No. 1 Fleming, SE NW Section 6-9-68, the only well drilling in that pool, is making hole at 2,275 feet. This company's No. 3 Mitchell, NW SE SE Section 6-9n-68, in the area of the big gas, which was completed a few weeks ago at 4,410 feet with a show of oil with water, has since been on the pump. It is now making around 60 bbls. of oil with 300 bbls. of water, or about twice the quantity of oil it was making the week previous. No. 1 Plummer, further northeast, was a water well which became one of the best producers with continuous pumping and which is still making oil after having been on production for several years.

Pueblo County has a new operation getting under way on the Beulah Dome, 24 miles southwest of the city of Pueblo and considerably to the west of the Vineland district, which recently proved to be a disappointment. It is being drilled by the Beulah Dome Syndicate in the center S half NW SW Section 7-23s-67. It started with 10-inch spudder tools and is expected to test all horizons down to the Morrison inside of 1,000 feet.

In Yuma County, in the eastern part of the state just west of the Kansas line, the Major Petroleum, Inc., No. 1-A Winegar, SW SE NW Section 7-2s-43, commenced spudding May 26 in a 20-inch hole for a 5,000-foot test after skidding rig from No. 1. The location is 8 miles west of the Phillips Petroleum Co.'s 5,000-foot test to the Pennsylvanian, which is getting under way.

In Boulder County, C. C. Jain and others' No. 1 Mesa Dome, NW NW Section 17-2n-70, which had a show of oil at 2,220 feet, just above the Muddy a few weeks ago and shut down for casing, is resuming and is underreaming the 6⅝-inch at 2,210 feet and will set it on bottom before drilling in.

Moffat County

In Moffat County, Thomas McLaughlin and others' No. 1 Williams, NW SW Section 2-3n-92, in the Iles area, is drilling at 3,585 feet and is believed to be within 60 feet of the Dakota. The 8¼-inch is at 3,520 feet, where a water shutoff was made. The Texas Production Co.'s No. 36 Lloyd, SE cor. Section 21-4n-92, which was drilled to 3,862 feet, where it had a hole full of water in the Sundance, topped at 3,648 feet, is plugging back. The Midwest Refining Co.'s No. 24-SD Parkinson, NE SE NW Section 22-4-92, is drilling at approximately 3,518 feet, 10 feet in the Sundance, and has 2,100 feet of oil in the hole. This well is running about 35 feet lower on the structure than No. 36 Lloyd, and indicates some freakish condition, probably due to faulting. The McCormick Oil Co.'s No. 1-A Sales, SE SE Section 28-4n-92, is resuming at 75 feet after being shut down for the winter. Rig was skidded and well spudded in last January, after which it was shut down. The Mountain Fuel Supply Co.'s No. 1 State-Reiter-Foster, SE cor. Section 16-12n-100, Hiawatha Dome, is running 3½-inch liner at a total depth of 3,585 feet to complete as a small gas well, the hole being too small to go any deeper. It is estimated good for 1,000,000 feet a day.

In Routt County, the Texas Production Co.'s No. 4 Belle Dennis, NE SE Section 7-6n-86, Tow Creek Dome, is coring at 4,793 feet, much deeper than it was thought it would have to go. Morrison & Johnson's No. 1 Hitchins, SW cor. SE Section 31-7n-85, Trull Creek, was abandoned at 2,900 feet. It did not go deep enough to reach the Frontier and had no important shows.

In Jackson County, the Continental Oil Co. is moving in material for its No. 2 Hoye, to be drilled about 500 feet south of No. 1 Hoye, NE SW NE Section 34-9n-78, on the South McCallum Dome, which has made little progress for about a year, having had all kinds of trouble since striking gas at 4,875 feet. The new hole will be drilled with cable tools. The Midwest Refining Co.'s No. 1 Rich, SW NW Section 9-6n-80, Buffalo Creek, 20 miles southwest of Walden and 3 miles east of the Producers & Refiners' No. 1 Hendershot is moving in material. The Producers & Refiners' No. 1 Hendershot, SE NE Section 2-6n-86, Pole Mountain area, is bottomed at 1,900 feet and cleaning out at 1,875 feet, the hole caving badly. The 12½-inch is cemented at 1,844 feet.

Rio Blanco County

In Rio Blanco County, the Texas Production Co.'s No. 1 Potter, C NE SW Section 30-2n-96, White River Dome, is moving in material for its Tertiary test. Rotary rig and equipment will be used. The White Eagle Oil & Refining Co.'s No. 1-A Fordham, NW SW Section 9-2s-96, Picenace Creek, is bottomed at 450 feet and running the 15½-inch to cement. It is below the 432 feet horizon which gave so much trouble in No. 1 and caused the skidding of the rig.

In Weld County, the Platte Valley Petroleum Co.'s No. 1 Patterson, SW SW Section 24-6n-61, Greasewood structure, is drilling at 4,200 feet with several hundred feet to go to reach the Dakota. Progress has been slow recently due to the cavy ground which made it necessary to stop and cement several times. This well commenced drilling 3 years ago, but was idle for several long periods. The Kelly Oil Co.'s No. 1 State, SE NW Section 36-14-57, in Lincoln County, is resuming at 1,690 feet.

The recent advances in Mid-Continent crude prices was reflected in the Florence Field, where the posted price has been raised by the Continental Oil Co. from $1.05 to $1.15. A meeting was held in Canon City the past week at which plans were formulated for organizing the Canon Heights Oil & Gas Co. for the purpose of putting down a test north of Canon City. The board of directors is composed of S. W. Pressey, D. P. Van Buskirk, J. T. Frey, Ted Harding, Mrs. Belle Guinn, Richard Houle, A. E. Sherman, W. G. Harry and Charles A. Doran. Owners of approximately 2,000 acres were represented. The Crawford Oil & Gas Co. has been formed by citizens of Crawford, in Delta County, to drill a test on the Needle Rock Dome near that town. Geologists have reported upon the structure after about 2 years of geological work conducted at varying intervals. In January, 1928, E. M. Maddin started a well on the NE SE NE Section 36-15-92, but so far as known it did not go beyond the spudding stage.

WYOMING

A deal has been completed between the Midwest Refining Co. and the California Petroleum Corp., subsidiary of The Texas Corp., whereby the Midwest has taken over the gathering system in the LaBarge Field in Sublet County in southwestern Wyoming. This puts the Midwest in control of the entire transportation system from the wells to the railhead at Opal. Shortly before The Texas Corp. acquired control of the California Petroleum Corp., the latter made a deal with the Utah Oil Refining Co. for the sale of its crude output at LaBarge to the Utah concern for its refinery at Salt Lake City and for the construction of a pipe line from the field to Opal on the Oregon Short Line Railroad. The pipe line project was assigned to the Midwest by the Utah company and it was built and placed in operation more than a year ago, but the field gathering system belonged to the California Petroleum Corp. The deal makes for a unified operation and some economical saving. The pipe line is running around 1,800 bbls. a day.

There is a noticeable increase in activity in southwestern Wyoming as a result of better weather conditions. The California Petroleum Corp. has resumed drilling at LaBarge and has two wells under way and is working over some of the old wells that were idle during the winter. Its No. 5-L, Section 34-27-113, is ready to spud and its No. 7-D, Section 34-27-113, is drilling at 535 feet. The California Co.'s No. 1 Wyss, NE SW Section 12-32-115, South Cottonwood, is drilling at 2,129 feet in dark shale.

In Uinta County, the California Co.'s No. 1 Union Pacific, NE NW Section 7-17-116, Muddy Creek Dome, is bottomed at 3,182 feet and fishing for bit. The E. L. Doheny interests are starting another well on the Wooten permit in the NW Section 3-13n-118, on the Aspen structure, a joint operation with the Deseret Oil & Refining Co. The joint well of the same interests on Section 6-14-118, after resuming at 2,248 feet following the winter shutdown, is standing again on account of bad roads.

Sweetwater County

Drilling operations in Sweetwater County are going ahead. The Producers & Refiners' No. 1, NE SE Section 26-20-104, North Baxter Basin, joint with the Marland Oil Co., is drilling at 3,720 feet in sand. A flow of approximately 10,000,000 feet of gas at 3,500 feet, presumably in the Lakota, was killed to drill on down to the Sundance. The Mountain Fuel Supply Co.'s No. 1 Newberry, SE cor. Section 13-12-100, joint with the Somir Petroleum Co., is making new hole for the first time for the past year and is drilling at 1,350 feet. The Mountain Fuel Supply Co.'s No. 1 Hay, Section 26-17-104, South Baxter Basin, is drilling at 125 feet in new hole after skidding rig, and its No. 1 Murphy, Section 26-17-104, is spudding. The same company's No. 1 Humphreys, SW NE Section 2-12-101, Canon Creek Dome, is drilling at 3,640 feet, and its No. 1 Arnold, NE Section 24-19-104, Middle Baxter Basin, is drilling at 2,685 feet. The drilling in this area, with a few exceptions, is for the purpose of developing a reserve gas supply for the pipe line project into Utah. There were some fears as to the possibility of holding the gas lands in a solid block to insure development of the gas as needed when President Hoover's new policy in regard to prospecting on the public domain went into effect last March, but it is reported unofficially the situation has been straightened out and it will not be necessary to drill a large number of wells to hold permits or face the risk of losing any part of the area planned to be held in reserve.

Salt Creek

Two small completions in Salt Creek were reported. The Midwest Oil Co.'s No. 15-T, SE Section 26-40-79, was completed at 1,757 feet in the third Wall Creek sand with a production of 6 bbls., and the Wyoming Associated Oil Co.'s

No. 15-M, SE Section 23-40-79, was completed at 2,540 feet in the Morrison for 15 bbls. In Natrona County outside of Salt Creek, the Prairie Oil & Gas Co.'s No. 1 Baird, NE SW Section 22-31-81, Clark Dome, southwest of Casper, has commenced spudding.

The Fargo-Western Oil Co.'s No. 11, NE NW Section 3-33-83, Poison Spider district, is fishing for tools at 1,430 feet. This company has installed a new band wheel power for pumping its wells and five wells have been hooked up. Eventually all of its 14 wells will be connected. M. C. Weisman and associates are starting No. 4 in Section 31-37-81, North Casper Creek, and it is drilling at 250 feet. It is east of No. 3.

In Johnson County the United States Bureau of Mines, it is reported, will plug Graves & Murphy's No. 1 O'Connor, NW cor. Section 10-41-80, which was standing at 825 feet with a hole full of water. The well is on Duggount Creek. The Carter Oil Co.'s No. 1 State, SW SW Section 16-48-82, Billy Creek, has recemented the bottom at 3,240 feet, the first job failing to hold against the heaving shale which kept coming up from the bottom. Before cementing, the hole had about 1,800 feet of oil standing in it.

Carbon County

In Carbon County, the Red Feather Oil Co.'s No. 1, SW SW Section 35-13-92, Baggs Dome, joint with the Producers Oil & Gas Co., is preparing to resume after being shut down for the winter at 1,005 feet. The well had been showing considerable gas before shutting down, the quantity increasing with additional depth until it was estimated at 5,000,000 feet at 1,005 feet. The 12½-inch was set and cemented on bottom. This is a test of Tertiary horizons. The Producers & Refiners' No. 3, SE NW Section 2-19-88, Hatfield Dome, is drilling on iron at 3,933 feet, the total depth being 4,003 feet, and its No. 1, NE NE Section 14-25-89, Sherrard Dome, is drilling at 3,142 feet in hard shell. Same company's No. 7, Section 7-26-89, on the Wertz Dome, is drilling at 3,547 feet in blue shale, and its No. 8, same section, is killing gas at a total depth of 3,718 feet, to drill deeper. The gas was encountered at this depth last winter.

In Fremont County, the Producers & Refiners Corp. is starting its third well on the Muskrat Dome, where its discovery encountered a big flow of gas last fall. The new operation, for which rig is being built, is in Section 1-33-92, about 1½ miles southeast of the discovery. No. 2, Section 33-34-92, to the northwest of the discovery, has rig completed.

Big Horn Basin

In the Big Horn Basin the most important developments were in Park County. The Coty Petroleum Co.,'s No. 2 Klindt, NE NE Section 7-51-100, on the Oregon Basin structure, a producer in the Tensleep, deepened to the Amsden at 4,165 feet after the upper horizon had gone to water, encountered oil in the lower formation, the fluid rising almost to the top and showing no water. However, upon being deepened, it ran into water at 4,188 feet and will be plugged back. While a disappointment in this particular well, which is in the saddle between the north and south domes, it holds out some promise for wells in the new horizon higher on structure. On the Frannie Dome, the Midwest Refining Co.'s No. 36 Kirk-Peters, SE cor. Section 23-58-98, which is bottomed in the Embar at 2,811 feet, was making 25 bbls. a day when a prolonged swabbing test was completed. Rods and tubing are being run and it will be put on the pump. Its No. 36 Rosenberg, SE cor. NW Section 25-58-98, which drilled through a fault and found water in the top of the Embar, has shown no change. The Producers & Refiners' No. 1 Rand, SE NW Section 7-57-97, has drilled out the cement after setting the 8¼-inch at 2,185 feet, and it tested dry. Its No. 1 Hill, same section, is drilling in sandy shale at 450 feet.

The Texas Production Co.'s No. 1, Section 23-45-100, Skelton Dome, in Hot Springs County, is isolated by heavy rains, but at last reports was drilling at 2,350 feet.

IDAHO

The California Co.'s No. 1 Sorensen, NW SW Section 33-3n-41, Meadow Creek structure, Bonneville County, Idaho, is drilling at 2,976 feet in gray lime. The Grand Teton Oil Co.'s No. 1 Blevins, SW Section 33-5n-44, Horseshoe structure, Teton County, joint with the Standard Exploration Co., is reported drilling at 337 feet in blue shale, a member of the Frontier. The Grand Teton company's officials, together with Christian Vrang, geologist, have been in consultation regarding the starting of a second well on the structure which the Grand Teton company will drill. Tentative plans provide for beginning work within the next two weeks on Section 4-4n-44, on the Olive Adams permit. Norton Brothers' No. 1, Section 19-10s-37, on the Arimo structure in Bannock County, which was reported recently to have struck a water sand at 2,200 feet showing some oil and gas, is attracting considerable attenion. H. B. Sheppard, writing from Idaho Falls in regard to this well, says in part:

Norton Brothers Oil & Gas Co.'s test on the Arimo structure, 75 miles south of Idaho Falls, according to G. M. Johnson, chief geologist, is bottomed in an upper sand of the Devonian system, from which the oil and gas now showing is coming. The hole is 15 feet below the bottom of the Madison lime. The company has about 16,000 acres under lease, all being patented land. A standard rig is in use. The well started in a 15-inch hole and is now down to 6-inch. Drilling has ceased and a water shutoff is being made. Considerable water is flowing with which occurs the gas and slight showing of petroleum, to the extent that rainbow colors show on the surface of the water and a brownish purple foam gathers. Mr. Johnson reports a temperature of 135 degree showed at the hole bottom.

The Arimo structure is made up of a fold with a strike almost north and south, but the axis is bending to the west slightly at the southern extremity. The Portneuf fault closes off the north end and the Virginia fault closes off the south end. The fold has in all likelihood been caused by a large overthrust fault thrusting from the southeast. The well was spudded in in the Wells formation (Pennsylvanian). The Madison lime was but 500 feet in thickness. Immediately beneath the Madison lime, a 5-foot stratum of rather crystalline lime was penetrated, and then the present sand picked up in which the hole is now bottomed. The structure dips on all sides.

MONTANA

The Sunhew Petroleum Corp., drilling in the Kevin-Sunburst Field, found oil at the Ellis-Madison contact at 1,532 feet last week and appears to have one of the best wells in the field from that depth. Location is given as Section 19-35-2. The well will be carried to the first break in the lime where very good production has been found in other wells. The two deep tests in the Kevin-Sunburst Field, the Advance and Potlatch wells, are both making hole.

One completion is reported from the Pondera Field, the Ohio Oil Co.'s No. 4 Monson on Section 22-27-4, which will probably make a 50-bbl. producer.

The Cherry Ridge test of the Ohio Oil Co. in Blaine County, Section 3-24-21, found water in the Sunburst sand at 3,870 feet. The Arab Gasoline Co. has taken over this well and will test all the sands.

A good showing of gas was reported by the Shoshone Consolidated Oil Co., drilling on the Hamilton Coulee structure near Big Timber. The showing was found at 4,590 feet, and the well has about 3,500 feet of water in the hole. Good oil showings were reported in the upper strata.

No further drilling has been done at the U. S. Petroleum Co. well on the Black Horse Lake structure near Great Falls, where oil was encountered two weeks ago. The showing was found in a sand at 1,150 feet, and drilling was stopped with the bit 4 inches in this sand. According to reports from Great Falls the well is standing with 700 feet of oil in the hole on top of about 100 feet of water.

ROCKY MOUNTAIN FIELDS
Daily Average Pipe Line Runs Week Ending June 1

WYOMING	
Salt Creek	32,180
Frannie	40
Big Muddy	2,270
Oregon Basin	3,790
Byron	20
Dutton	30
Elk Basin	750
Ferris	30
Grass Creek	2,460
Greybull	20
Hamilton	1,000
LaBarge	1,770
Lance Creek	270
Lost Soldier	3,170
Osage	620
Poison Spider	760
Rock River	2,560
Rex Lake	130
Lander	140
Simpson Ridge	50
Teapot Dome	40
Mule Creek	530
Total	52,630
MONTANA	
Cat Creek	1,440
Kevin-Sunburst	6,860
Pondera	3,360
Lake Basin	90
Total	11,750
COLORADO	
Moffat	1,819
Fort Collins	2,508
Florence	939
Iles	1,409
Tow Creek	500
Boulder	25
Rangely	100
Total	7,300
NEW MEXICO	
Artesia	921
Cap Rock (Maljamar)	403
Hogback	240
Rattlesnake	1,053
Table Mesa	....
Total	2,617
Grand total	74,297

PANHANDLE FIELDS

(Continued from Page 79)

and others had an initial production of 24 bbls. at 1,740-56 feet.

Wichita County

Production Oil Co.'s No. 3 Allen & Kemp was drilled to a total depth of 1,762 feet, topped the pay at 1,757 feet and had an initial production of 14 bbls. oil and 30 bbls. water. River-Bailey's No. 2 Mitchie-D made 55 bbls. at 1,774-95 feet. Their No. 3 Mitchie-D made 40 bbls. in 12 hours at 1,785-1,799½ feet. Hunter and others' No. 5 McClure made 16 bbls. at 561-567 feet. Venmex Oil Co.'s No. 18 Waggoner Brothers made 20 bbls. oil and 17 bbls. water at 1,478-91 feet. Willson Drilling Co.'s No. 5 Kemp & Kempner was dry and abandoned at 1,976 feet. Barclay & Faith Oil Co.'s No. 2 Kemp & Kempner was dry and abandoned at 1,802 feet. Bradstreet's No. 1 Waggoner was dry and abandoned at 2,060 feet. Clark & Bridwell's No. 1 Franke was dry and abandoned at 1,950 feet. Golding & Cochran's No. 2 Waggoner Brothers was drilled to a total depth of 1,305 feet, topped the pay at 1,287 feet and had an initial production of 173 bbls. Hammon & Heyser's No. 10 McCarty was dry and abandoned at 2,067 feet. Hines' No. 4 Burnett and others was drilled to a total depth of 1,405 feet, topped the pay at 1,388 feet and had an initial production of 10 bbls. G. H. Howell's No. 1 Foster & Allen made 19½ bbls. oil and 7 bbls. water at 1,788-1,793½ feet. Magnolia Petroleum Co.'s No. 13 Donehoo was dry and abandoned at 1,548 feet. Magnolia Petroleum Co.'s No. 16 Honoker was drilled to a total depth of 1,193 feet, topped the pay at 1,196 feet and had an initial production of 6 bbls.

Wilbarger County

Burton's No. 1 Waggoner was dry and abandoned at 2,020 feet. Carter's No. 2 Waggoner made 82 bbls. at 1,985-98 feet. Consolidated Oil Co.'s No. 1 Waggoner was dry and abandoned at 1,944 feet. Fain-McGaha Oil Corp.'s No. 3 Waggoner made 30 bbls. at 1,844-48 feet. Hammond & Mitchorn's No. 1 Waggoner was dry and abandoned at 2,018 feet. Kelly & Adams' No. 1 Waggoner was temporarily abandoned. Knight's No. 1 Waggoner had an initial production of 200 bbls. at 1,863-76 feet. Lawson's No. 1 Waggoner was dry and abandoned at 2,568 feet. Melat Oil Co.'s No. 6 Waggoner made 70 bbls. at 1,988-97 feet. O'Neil's No. 1 Parker & Colbert was dry and abandoned at 2,601 feet. Robertson and others' No. 2 Webb Waggoner made 70 bbls. at 1,990-98 feet. Simpson Fell Oil Co.'s No. 1 Waggoner was dry and abandoned at 2,205 feet. Staley & Wynne Co.'s No. 3 Waggoner made 165 bbls. at 1,900-1,910 feet. Waggoner Refining Co.'s No. 7 Waggoner made 24 bbls. at 2,293-2,315 feet and 2,367-79 feet. Its No. 4 Waggoner made 275 bbls. at 2,275-93 feet.

Young County

Bradstreet's No. 2 Richardson was dry and abandoned at 715 feet. Continental Oil Co.'s No. 9 Campbell was dry and abandoned at 928 feet. Edmonson's No. 1 Johnson was dry and abandoned at 615 feet. Hawkins and others' No. 2 Owens was dry and abandoned at 745 feet. Kimbrell & Lyles' No. 4 Deyer made 2 bbls. at 570-584 feet. McMeans' No. 1 Kuth was dry and abandoned at 850 feet. Petroleum Producers Co.'s No. 1 Whitt made 25 bbls. at 1,022-25 feet. Riggs and others' No. 29 McKinley made 25 bbls. at 569-586 feet. Stivers & Struter's No. 1 Lobban was dry and abandoned at 4,370 feet.

RANGER DISTRICT COMPLETIONS

Week Ending June 1, 1929

Brown County

Bearman & Barbara Oil Co.'s No. 1 was drilled to a total depth of 1,116 feet, topped the pay at 1,085-1,110 feet, was shot with 20 quarts at 1,090-96 feet and was dry and abandoned. Duffy and others' No. 1 Hill was dry and abandoned at 1,015 feet. Pandem Oil Corp.'s No. 12 Westerman was dry and abandoned at 1,265 feet. Warren and others' No. 2 Duff was drilled to a total depth of 1,151 feet, topped the pay at 1,143-51 feet and had an initial production of 80 bbls. Anzac Oil Corp.'s No. 1 Brooke was dry and abandoned at 1,397 feet.

Callahan County

Gunn Production Co.'s No. 1 Orvell was drilled to a total depth of 1,693 feet, plugged back to 1,655 feet, shot with 10 and 30 quarts at 1,640-55 feet and had an initial production of 15 bbls.

Coleman County

Eastland Oil Co.'s No. 3 Morris-B was drilled to a total depth of 2,002 feet, found gas sand at 1,987-91 feet, made 8,250,000 feet of gas and 400 bbls. oil. Gwinnup and others' No. 2 House heirs was dry and abandoned at 2,054 feet. Jackson & Veihl's No. 1 Davis was dry and abandoned at 3,330 feet. Cunningham and others' No. 8 Hennings-C was drilled to total depth of 1,190 feet, topped the pay at 1,170-90 feet and had an initial production of 25 bbls. daily. Samuels' No. 1 Gill was dry and abandoned at 1,005 feet. Stepp & Vandevetter's No. 1 Shore was drilled to a total depth of 928 feet, found gas sand at 925-28 feet and had an initial production of 7 bbls. oil and 2,624,000 feet of gas.

Eastland County

Conway Brothers & Champion's No. 3 Simmons was drilled to a total depth of 1,136 feet, topped the pay at 1,131-36 feet and had an initial production of 30 bbls. McLester and others' No. 2 Allen estate was dry and abandoned at 3,375 feet. Mook-Texas Oil Co.'s No. 1 Parker was dry and abandoned at 3,020 feet. Parsons and others' No. 1 Stubblefield was dry and abandoned at 3,495 feet. Texas Development Co.'s No. 1 Lewis was temporarily abandoned. Oyster & Rife's No. 1 Ross estate was dry and abandoned at 1,542 feet.

Montague County

The Texas Company's No. 4 Salmon was dry and abandoned at 2,003 feet.

Cooke County

The Texas Company's No. 9 Dennis was drilled to a total depth of 1,251 feet, topped the pay at 1,221 feet and had an initial production of 245 bbls. the first 24 hours.

Erath County

Associated Production Co.'s No. 2 Cary was drilled to a total depth of 3,250 feet, topped the pay at 3,235-50 feet, was shot with 60 quarts at 3,210-50 feet and had

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Oil Industry Construction News

TO BUILD CRACKING UNIT AT WILMINGTON REFINERY

LOS ANGELES, Calif., June 1.—Through arrangement with the Petroleum Conversion Corp. of America, who owns patent rights on the new process, the Western Oil & Refining Co. has, with the Royal Dutch-Shell, secured rights for the use of the process at its Wilmington refinery. The first unit will be erected at Western's Wilmington site by the C. F. Braun Co. of America. It will have a rated throughput capacity of 10,000 bbls. per day and will cost in the neighborhood of $1,500,000. Interviewed in connection with the project, R. R. Rakestraw, vice president and chief engineer of the Western Oil & Refining Co., said that it will now be possible for automobile engineers to design motors with a compression ratio of 7 to 1. Formerly a ratio of 5½ to 1 was as high as it was possible to go. Tests indicate that the motor fuel produced by the new process will be the highest grade of antiknock motor fuel and will be as efficient as 100 per cent benzol. Rakestraw and E. J. McKee, Western Oil engineer, own part of the patents on the process; that of a method of continuous carbon removal. Design and construction of the plant will be supervised by E. W. Beardsley, vice president of the Petroleum Conversion Corp.

LONE STAR PLANS PIPE LINE 135 MILES LONG

Plans for construction of a natural gas pipe line 135 miles long from Petrolia to Fort Worth and Dallas, in Texas, are announced by L. B. Denning, president of the Lone Star Gas Co. The line will be of 20-inch pipe with a daily capacity of more than 100,000,000 feet and will cost more than $1,000,000. It will be the largest gas line in that part of the State and will give the company four main lines reaching Fort Worth and Dallas from the northwest and north.

Two lines, one 10-inch and one 16-inch, now bring gas in from the northwest, tapping the Texas Panhandle, the Petrolia and Oklahoma fields, and a third comes in on the north from Oklahoma. Two other large mains come in from the south, bringing gas from West Texas. The project will give work to several thousand men and will take many tons of pipe. The date for starting the work has not yet been determined.

CONSERVATION LIVENS TRADE

Recent passage by the California legislature of a law designed to prevent waste of natural gas is expected to create a more active demand for the various items of equipment used in the natural gas industry. The only major gas line under construction or in immediate prospect in California at this time is the Pacific Gas & Electric Co.'s line, about 400 miles long, being laid to handle natural gas from Buttonwillow and Kettleman Hills. If the Shell Petroleum Corp. gets production at Kettleman Hills, it is expected to lay a 20-mile line to connect with the present lines at Coalinga.

NEW CARBON BLACK UNITS

BORGER, Tex., June 1.—The construction of two additional large size units for the Rock Creek plant of the Eastern Carbon Black Co., 3 miles southwest of Borger, has been ordered by officials. When completed this will give the Kosmos and Eastern companies with four plants in Borger, and two more in the county, a total consumption of slightly less than 200,000,000 cubic feet of residue gas.

NEW LINE FROM VIKING FIELD TO EDMONTON

CHATHAM, Ontario, June 1.—Northwestern Utilities, Ltd., which supplies natural gas to Edmonton, Alberta, from the Viking Field, has announced a prospective expenditure of $530,000 on improvements and extensions. This includes an expenditure of $85,000 on the Edmonton distributing system, and the drilling of three new wells and other development, which will increase the gas supply from 22,326,000 feet a day to 26,880,000 feet. In addition the Hudson's Bay-Marland Oil Co. is at present drilling one well, under agreement with Northwestern Utilities, Ltd., which will give the latter company production from four new wells in the Viking field.

The company proposed this year to lay the first section of an additional line from Viking to Edmonton, to consist of 12¾-inch outside diameter pipe. This section, starting at the Viking end, will run about 20.6 miles and will increase the daily capacity of the system to about 27,000,000 feet. The present main line from Viking to Edmonton consists of 36.7 miles of 10¾-inch and 40.5 miles of 12-inch.

On December 31, 1928, the company had 8,407 consumers in Edmonton, and it is estimated the number next year will be around 9,200. The additional line this year will handle the prospective peak load at 50 below zero, and will allow a safe working load of 350 pounds to the inch. Later, this additional line will be extended to Edmonton as required in order to meet increasing consumer demand; providing, when completed, a maximum capacity of around 54,000,000 feet. By an ingenious arrangement of automatic valves and bypasses a continuous supply will be available in case of a breakdown. Throughout the new line double length pipe will be used, while 7 miles will be treated for protection against corrosion.

CANADIAN PIPE LINE TO SERVE WINNIPEG

CHATHAM, Ontario, June 1.—A $50,000,000 project involving a pipe line from the Turner Valley to Winnipeg, Manitoba, serving, en route, Regina, Moose Jaw, Saskatoon and other cities and towns, is under consideration, and arrangements for financing are now being discussed. The line will draw its gas supplies from the Turner Valley and other Alberta fields.

Stanley J. Davies, petroleum engineer of Calgary; W. S. Herron of Okalta Oils, Ltd., and associates have been investigating the feasibility of the project. They have been encouraged by the completion of additional gassers in the Turner Valley Field, ensuring a substantial gas supply, which can be supplemented from the Wainwright, Cypress Hills and other fields. The outlined program provides for piping gas to practically all the important urban centers between the foothills and Winnipeg, and involves franchises for scores of towns and cities and the development of additional gas fields wherever they can be found.

LOOP TO SAN ANGELO

FORT WORTH, Tex., June 1.—A 38-mile loop is to be made on the gas line of the Oklahoma Natural Gas Corp., between San Angelo and Coleman, Tex., due to the great amount of gas in demand at San Angelo, and to prevent gas being cut off by a sudden rise of the Colorado River at Ballinger, and destruction of the pipe crossing at this juncture.

INTERNATIONAL GAS PLANS MONROE PLANT

SHREVEPORT, La., June 1.—International Gas Products Co., of Monroe, La., is building a gasoline-carbon plant on the Sallie Smith farm in Section 29 and 32-16-7, Richland Parish, between Mangham and Archibald, a short distance southeast of production in the Richland gas field, which is expected to be in operation about the middle of the summer. The carbon plant will consist of one 30-unit plant and one of 20 units using 15,000,000 feet daily of residue gas from the absorption plant from which it will turn out 20,000 pounds of black. The company also has under consideration establishment of similar carbon-gasoline plants in West Texas and New Mexico during the next several months.

The company has approximately 500 acres of leases in the Richland Field and is drilling its first well on the Kate Humble farm in Section 35-16-6, in the southeast corner of proven territory, and immediately on completion will drill two more, the three furnishing ample gas to operate the plants. It also has completed surveys for 3 miles of line from the wells to the plant and construction will get under way next week.

The company, organized with $1,000,000 authorized capital, was chartered last March as a Louisiana company, the officers and directors being J. H. Mann, of Monroe, formerly of the Imperial Oil & Gas Products Co., president, secretary and general manager; Walter A. Windsor, Point Pleasant, W. Va., chairman of the board and treasurer; F. W. Ingraham, Point Pleasant, assistant treasurer; Sidney D. Joffrion, Monroe, assistant secretary.

The company's carbon plant will be the first actually constructed in the Monroe Field and the gasoline plant will be the second.

INQUIRY ON PROTECTIVE COATING FOR PIPE LINES

The American Gas Association in cooperation with the Bureau of Standards is starting an investigation of protective coatings for pipe lines. A general study of the nature and method of application of the more common types of coatings is now under way.

As soon as this is completed a number of manufacturers will be asked to apply their products to pipe line samples, and these samples will be buried in a few locations where the corrosion is known to be severe. Some of the samples will be removed at intervals for examination. Each manufacturer will be expected to meet a general specification as to the nature and thickness of the coating.

Manufacturers of coatings should communicate with the bureau in case they wish to have their product considered in the tests which are being planned.

NEW REFINERY IN CHINA

At Macao, Portuguese China, existence of deposits from which gasoline may be produced at Kokbow, in southwestern Kwangtung, China, has been reported in commercial quarters. A Sino-American company was reported forming to exploit the deposits and erect a refinery.

CARBON PLANT IN LEFLORS

AUSTIN, Tex., June 1.—Application of the Western Carbon Co. of Dallas for permission to erect and operate a carbon black plant in the Leflors district in Gray County will be heard by the railroad commission. The plant would consume 30,000,000 feet of residue casinghead gas per day.

PIPE LINE EXTENSIONS IN OKLAHOMA FIELDS

The Empire Oil & Refining Co. is laying 3 miles of 4-inch screw joint pipe line from its main line running north and south through Township 19-1w, Payne County, Oklahoma, to the new wildcat well of the Reiter-Foster Oil Corp. in the SW cor SE Section 5-19-1w, same county. The Empire is building a station to handle the oil from the well in the SW cor. of Section 4-19-1w, which has been handled in tank cars previous to this time.

Prairie Pipe Line Co. is stringing pipe for a line from the pipe line station in Section 7-7-4 to Section 30-6-4, Pottawatomie County, Oklahoma. The new pipe line will be of 6-inch welded pipe and is 10½ miles long. Prairie Pipe Line Co. is also constructing a new station in the SE quarter of Section 30-6-4, in Pottawatomie County.

Tidal Pipe Line Co. is hauling pipe for a 6-inch line which extends its gathering lines 7 miles from the station in the north end of the St. Louis Pool in Section 5-7-5 to the new Asher Pool opened in Section 20-6-4, Pottawatomie County, Oklahoma.

The Texas Pipe Line Co. of Oklahoma has surveyed for a new 6-inch pipe line that will be 10 miles in length from its station north of the St. Louis Pool to Section 29-6-4 in the Asher district. The line will be built as soon as its production in the area warrants its construction.

DISTRIBUTING LINES FOR CALIFORNIA GAS

SAN FRANCISCO, Calif., June 1.—Pacific Gas & Electric Co. and Western Natural Gas Co. filed applications with the Railroad Commission for permission to construct pipe lines for distribution of natural gas in California.

Pacific Gas & Electric Co.'s application was an amendment to original request filed May 7 for permission to construct natural gas system from Kettleman and Button Willow Fields to Bay region. Western Natural Gas Co., which is a new California corporation with Texas principals, proposes construction of 200 miles of pipe line with projected expenditure of between $8,000,000 and $9,000,000, using Kettleman Fields as source of supply and purchasing gas from Standard Oil and Marland Oil companies.

TO BUILD GASOLINE PLANT

HOUSTON, Tex., June 4.—The Humble Oil & Refining Co. has decided to construct a natural gasoline plant in West Texas, probably in Pecos County, although no details are available as to location of the plant, its size or what equipment will be used. Gasoline plant officials of the company have been in West Texas investigating conditions.

TO LAY NORTH MUSKEGON LINE

MUSKEGON, Mich., June 1.—The United Petroleum Corp., which recently filed leases on six tracts covering an aggregate of 200.6 acres in and near the Muskegon oil field and announced it had a market for 100,000 bbls. of Dundee crude, will lay a 4-inch line through the city streets of North Muskegon to the Pere Marquette siding.

EXTENDING SYSTEM

Extensions to the Community Natural Gas Co.'s distribution systems in the Wynnewood district of Oklahoma are now under construction in the following towns: Pauls Valley, Sulphur, Paoli and Marietta.

SHEEHAN

PIPE LINE

CONSTRUCTION CO.

TULSA, OKLA.

SOUTHWEST TEXAS

(Continued from Page 64)

Survey 412, Block 25, completed at 1,300 feet; 3,000,000 feet of gas.

ABANDONED TESTS

Bexar County

Dingman Drilling Co.'s No. 1 Walter Gembler, A. Manchaca Survey, abandoned at 757 feet; showing not justifying bringing it in.

W. M. Morgan's No. 1 H. L. Martin abandoned at 1,000 feet in top of Taylor marl.

Caldwell County

Alexander & Smith's No. 1 J. A. Cardwell, J. P. Bell Survey, abandoned as dry at 1,900 feet.

T. C. Hadley's No. 1 Merriweather, A. Floyd Survey, abandoned at 2,729 feet and plugged.

Colorado County

Shell Petroleum Corp.'s No. 1 Neuendorff, J. Brod Survey, abandoned at approximately 2,115 feet.

Refugio County

Refugio Development Co.'s No. 1 City of Refugio, permanent injunction, test plugged at 3,400 feet and dropped from record.

NEW LOCATIONS MADE

Brooks County

A. W. Dinn's No. 1 J. G. Ramas, Le Mestena Grant, Block 5, location in SE corner.

Caldwell County

The Texas Company's No. 9 Merriweather, A. Floyd Survey, drilling at 129 feet in rock; set 10-inch casing at 42 feet.

Shell Petroleum Corp.'s No. 2 Clyant Smith, James Hinds Survey, building derrick.

Shell Petroleum Corp.'s No. 2 Dye, James Hinds Survey, building derrick

Lutex Oil Co. Inc.'s No. 6 Wilson, A. Floyd Survey, rigging up.

Humble Oil & Refining Co.'s No. B-3 Clyant Smith, rigging up.

Humble Oil & Refining Co.'s No. B-2 Clyant Smith, rigging up.

Humble Oil & Refining Co.'s No. B-2 J. L. Northcutt, set 46 feet of 10-inch casing.

Humble Oil & Refining Co.'s No. B-1 J. L. Northcutt, set 41 feet of 10-inch casing.

Humble Oil & Refining Co.'s No. 4 J. L. Northcutt; derrick up.

Humble Oil & Refining Co.'s No. 2 C. F. Dye, 300 feet north of No. 1, is location.

Humble Oil & Refining Co.'s No. B-2 M. Briscoe; derrick up.

T. C. Hadley's No. 3 Merriweather, A. Floyd Survey, rigging up.

Gulf Production Co.'s No. 7 W. L. Smith, spudded in.

Gulf Production Co.'s No. 7 J. L. Northcutt, James Hinds Survey, drilling at 767 feet in shale.

Gulf Production Co.'s No. 6 J. L. Northcutt, James Hinds Survey, rigging up.

Cranfill & Reynolds' No. 2-A J. L. Northcutt, Samuel Shupe Survey, location 300 feet southwest of No. 1.

Tip de Arman's No. 3 G. F. Carter, Hinds Survey, location 50 feet from north and west lines.

Goliad County

Humble Oil & Refining Co.'s No. 1 A. E. Taylor, location 1 mile northwest of No. 1 Reitz.

Guadalupe County

L. W. Stieren's No. 1 S. H. Herman, J. W. Ragsdale Survey, location 600 feet from center of north line.

Medina County

Pearson Oil Co.'s No. 1 Suburban Farms, location.

Refugio County

Houston Gulf Gas Co.'s No. 9 Lambert, rigging up.

Houston Oil Co.'s No. F-1 Rooke drilling at 484 feet.

Zavala County

Witherspoon Oil Co.'s No. 1 Ike Pryor set 550 feet of casing in brown shale, with hole caving.

Webb County

Carolina-Texas Oil & Gas Co.'s No. 7 Benavides, Survey 683, location 1,000 feet east line 153 feet from south line. Trussell. Cezeaux-Putman's No. 3 Bruni, Survey 10, Block 30, derrick up.

Crown Central Petroleum Corp.'s No. 1 E. Garcia, Survey 463, located 900 feet from east line and 150 feet from south line, rigging up.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 22 Kohler, Survey 395, 495 feet west line, 165 feet north line is showing oil and salt water at 1,854-78 feet. No. 23 Kohler, Survey 404, 1,485 feet south and west lines is rigging up. No. 24 Kohler, Survey 23, 165 feet north and west lines is testing at 1,810-14 feet. No. 25 Kohler, Survey 172, 165 feet north and west lines is location. No. 26 Kohler, Survey 251, 495 feet east line, 165 feet north line is drilling at 304 feet. No. 27 Kohler, Survey 399, 215 feet north line, 165 feet west line is rigging up. Sun Oil Co.'s No. 1 Lopez, Survey 728, near St. Pablo, is making location.

Driscoll Field

Robert Driscoll's No. 16 Driscoll, Survey 448, located 2,650 feet east line, 4,000 feet north line is drilling at 2,000 feet.

Schoolfield-O'Byrne Field

Magnolia Petroleum Co.'s No. 7-B Hahl, Survey 61, located 650 feet south line, 2,950 feet east line is rigging up. No. 3 Hahl, Survey 250, Block 24, located 450 feet north line, 150 feet east line is moving on. S. & O. Oil Co.'s No. 3 Hahl, Survey 250, Block 23, located 150 feet south and east lines is rigging up. G. M. Partee's No. 2 Moody, Survey 60, located 450 feet west line, 150 feet north line is location; No. 3 Moody, Survey 60, located 1,548 feet north line, 150 feet west line is drilling at 1,000 feet.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 42 M. S. Bank, Survey 235, located 330 feet west line, 4,254 feet north line is drilling at 2,195 feet. Randado Oil Corp.'s No. 35 Palacious, Survey 291, Block 2, located 150 feet south line, 450 feet east line is standing at 100 feet.

Henne-Winch-Fariss

George S. Marshall's No. 4 Holbein, Survey KKM, Block 10, Share 3, located 150 feet south and west lines is location. No. 5 Holbein, Survey 15, Block 10, Share 3, is location 150 feet north and west lines.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet east line and 470 feet south line got sand at 1,630-35 feet, testing.

Carolina-Texas Field

W. R. Shankle's No. 1 Webster, NE SE, Survey 684, located 150 feet south and west lines is drilling at 3,045 feet showing some oil, fishing for bailer. Trapshooter Reilly Oil & Royalties Co.'s No. 1 Benavides Survey 685, NE NW, located 150 feet north and east lines is drilling at 2,840 feet. George S. Marshall's No. 1 Webster, Survey 684, is location 150 feet north and east lines.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet east line, 160 feet north line is standing at 38 feet. Magnolia Petroleum Co.'s No. 1 J. G. Valdez, Survey 754, Block 15, located 150 feet south and west lines has derrick up.

Cole Gas Field

Trussell-Gezeaux-Putman's No. 1 Bruni, Survey 10, Block 40, located 150 feet northeast line, 150 feet northwest line at 2,332-36 feet tested large gasser. O. W. Killam's No. 10 Bruni, Survey 9, Adams Subdivision, located 1,449 feet northwest lines, 150 feet southwest lines is location.

Jennings Field—Zapata

South Texas Production Co.'s No. 1 Roy Jennings, Mira Flores grant Survey, located 18,055 feet southwest lines, 11,040 feet southeast lines, also 4,236 feet south, 63 degrees west of No. 4 is rigging up. O. W. Killam's No. 4 Hinnant, Survey 74, located 980 feet west line, 150 feet south line, is drilling at 2,540 feet. Magnolia Petroleum Co.'s No. 1 Cuellar, Survey 246, located 660 feet northeast lines and southeast lines is drilling at 1,865 feet. W. E. May and Alamo Drilling & Leasing Co.'s No. 1 Cuellar, Cerrito Blanco grant, located 1,470 feet south Killam's line is drilling at 300 feet. Ray & Holder's No. 1 Cuellar, Survey Cerrito grant, located 150 feet northwest lines, 446 feet southwest lines is drilling at 500 feet.

Somerset Field—Atascosa

Schimmel Production Co.'s No. 3 H. F. Gayle, C.E.P.I.&M. Survey, is location 496 feet east of No. 1.

Yoast Field—Bastrop

Atlantic Oil Production Co.'s No. 6 A. Yoast, A. Garcia Survey, located 300 feet southeast of No. 5 is setting casing at 1,300 feet. The Texas Company's No. 6 Yoast, A. Garcia Survey, located 300 feet southeast of No. 5 is drilling. Trinity Drillers, Inc.'s No. 4 A. Yoast, A. Garcia Survey, located 300 feet east of No. 3, is drilling at 1,380 feet in Serpentine.

Dobrowolski Field—Bexar

Amelia Balzert's No. 3 J. P. Adams, located 150 feet from road offsetting the Dobrowolski No. 1 has derrick up.

Somerset Field

American Central Oil & Gas Co.'s No. 4 Mary McConnell, W. G. Baker, Survey No. 138, located 806.6 feet from east line and 685 5 feet from south line is rigged up and standing. W. H. Kennon's No. 2 W. H. Kennon, M. F. Roderiques Survey No. 4, located 1,500 feet north, 15 degrees east of No. 1 is drilling at 983 feet.

Joe Bruner Field—Caldwell

Tips de Armond's No. 2 Carter, G. Hinds Survey, located 50 feet from No. 1, 170 feet to west line, 147 feet to north line, is drilling at 1,005 feet, showing some gas. E. R. Brawn and C. O. Miller's No. 2 R. W. Carter, G. Hinds Survey, located 300 feet north of No. 1, 150 feet to north line, 150 feet to west line has derrick up. Cranfill & Reynolds' No. 3 Hanson at 2,720 feet is shut down. No. 4 Northcut is drilling in shale and boulders at 1,703 feet. Forest Oil Co.'s No. 1 Moore, is fishing at 1,498 feet. Gulf Production Co.'s No. 13 Carter is drilling at 660 feet in shale. No. 5 J. L. Northcut is swabbing at 2,670 feet. T. C. Hadley's No. 1 J. M. Hanson, James Hinds Survey, 150 feet to south and east lines of W half of east 20 acres of J. M. Hanson farm is shut down at 2,640 feet; No. 2 Merriweather, A. Floyd Survey, 450 feet from west line in center of tract at 2,743 feet is running rods No. 2-B B. M. Briscoe, 206 feet north line, 150 feet west line of B lease is location. No. 3-A M. Briscoe is drilling and tubing. Humble Oil & Refining Co.'s at 2,705 feet in Edwards lime. No. 4-A M. Briscoe, 206 feet north line, 150 feet east line of A lease has derrick up. No. 1-B M. Briscoe is drilling in Buda at 2,546 feet. No. 2-A Floy Gray, J. Hinds Survey, 150 feet from west and 450 feet from east lines is drilling at 750 feet in shale. No. 1-B Floy Gray is drilling at 2,530 feet in chalk. No. 2-C Floy Gray is drilling at 1,945 feet in shale. No. 3 Addie Hinds, James Hinds Survey is drilling at 2,418 feet in chalk. No. 3-B Johnson, James Hinds Survey, 206 feet south and east lines, has derrick up. No. 4-B Moses & Baggett, S. Shupe Survey, 1,514 feet south line, 150 feet to east line is drilling at 2,526 feet in Buda. No. 8-B Moses & Baggett, S. Shupe Survey, is drilling at 1,802 feet in shale. No. 9-B Moses & Baggett is drilling at 550 feet in shale. No. 3 J. L. Northcut is drilling at 2,112 feet. No. 1-B Clyant Smith at 2,194 feet drilled plug, very little showing. No. 2-A J. R. Tiller, James Hinds Survey, 300 feet north of No. 1-A and 264 feet east line of lease at 2,702 feet, waiting on pump. No. 4-A J. R. Tiller at 2,680 feet set 6⅝-inch casing. No. 2-C J. R. Tiller, 206 feet north line, 150 feet east line of "C" lease is drilling at 720 feet in shale. No. 1-D J. R. Tiller, 150 feet west line, 206 feet north line of "D" lease at 356 feet in sandy shale. No. 3 T. A. Tiller, 450 feet north line, 150 feet east line is drilling at 665 feet in shale. No. 3 Wright is drilling at 2,690 feet in Georgetown. Swearingen trustee's No. 1 Caldwell County Land, James Hinds Survey at 2,503 feet; shut down, litigations. Morgan-Duke's No. 2 Cora Malone, A. Floyd Survey, 300 feet southwest of No. 1 is partially rigged up. Shell Petroleum Co.'s No. 5 New at 2,720 feet, set 8-inch casing. No. 6 R. W. Malone, A. Floyd Survey, 700 feet south and east lines is location. No. 1 Clyant Smith, 150 feet east and south lines at 2,330 feet is flowing oil and water. H. J. Powell trustee's No. 2 Cora Malone, A. Floyd Survey, 300 feet south of No. 1, 150 feet west line at 2,650 feet, cleaning out hole. The Texas Company's No. 8 Merriweather at 2,786 feet is standing. Thurman & Brown's No. 1 Baversdorff, A. Floyd Survey, is 150 feet southeast lines, 131 feet southwest lines.

Branyon Field

Al Buchanan and others' No. 1 R. C. Teas, John R. Miller Survey, is drilling at 1,800 feet. United North & South Development Co.'s No. 1 F. Blundell, R. B. Jarmon Survey, 150 feet north line, 318 feet east line is location.

Dale Field

The Texas Company's No. 2 J. Moore, J. Gilbert Survey, 600 feet northwest lines, 1,600 feet southwest lines, is drilling at 1,400 feet in shale.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Block 10, Section 40, 250 feet east line, 450 feet north line is drilling at 5,825-28 feet.

Cartwright Field—Live Oak

Houston Oil Co.'s No. 1 T. G. Parr, J. McMullen Survey, 532 feet southwest lines, 635 feet northeast lines is drilling at 2,000 feet.

Agua Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 Otto Wolters, John G. Morris Survey, Section 34, is standing at 2,047 feet. R. & G. Corp.'s No. 1 Brown, George H. Paul Subdivision, Section 87, is location. No. 2 Ed Allen, 150 feet north and east lines, about 1,900 feet east of No. 1, is rigged up.

Refugio Field—Refugio

Benedum & Trees' No. 4 Claude Heard, Refugio Town Tracts Survey, 600 feet south of No. 3 is drilling at 1,243 feet. Houston Gulf Gas Co.'s No. 1 Adkins, located 500 feet north of Shelly lines is drilling at 464 feet. No. 3 Adkins is drilling at 800 feet. No. 5 C. Heard is reworking. No. 4 Holmes Heard topped sand at 3,700 feet. No. 2 Rooke, 700 feet north of No. 1, is drilling at 4,046 feet. No. 5 Ryals set casing at 501 feet. Houston Oil Co.'s No. 6 W. Heard, 517 feet west of No. 5, is drilling at 3,700 feet. No. 7 W. Heard, 150 feet south and east lines, is drilling at 1,400 feet. No. 6 Rooke at 1,720 feet is pumping mud. No. 1-B Rooke, southwest of Rooke No. 10, is setting surface casing. Karona Oil Co.'s No. 1 Ryals, 150 feet south and west lines at 450 feet is drilling out plug. Mission Drilling Co.'s No. 1 J. F. B. Heard, 2,000 feet east of No. 1 Cummins, 150 feet south of river at 3,696 feet is setting 8¼-inch casing. No. 1 Powers, 150 feet south line at 3,689 feet cored, salt water, sand. No. 3 L. M. Rogers is standing at 4,650 feet. No. 1 O'Brien is location. No. 2 Mitchell, at south end of Oak Street in city of Refugio, 300 feet west of No. 1 is location. No. 1 Huddleston, center of city block, northwest of town (No. 94) is rigging up. No. 1 T. P. Shelly is drilling at 1,784 feet. W. L. Pearson's No. 1 Fox estate, Block No. 4, is location. Saxet Gas Co.'s No. 7 Claude Heard, 150 feet south of No. 6, 150 feet west line of lease, is drilling at 3,694 feet. Sun Oil Co.'s No. 1 Rea, 150 feet north and west lines, is spudded in.

WEST TEXAS GEOLOGISTS

MIDLAND, TEX., June 1.—Members of the West Texas Geological Society will go on a field excursion in June instead of holding their usual monthly meeting, Guy E. Green, Midland, who is secretary of the organization, announced this week. The excursion will be made June 23 and 24 into eastern New Mexico. West Texas geologists will leave from Midland, and will be joined in New Mexico by geologists of that state.

REX DAWSON MARRIES

Rex Dawson, assistant chief scout of the Carter Oil Co., and Miss Mary Elizabeth McCune were married June 1 in Tulsa.

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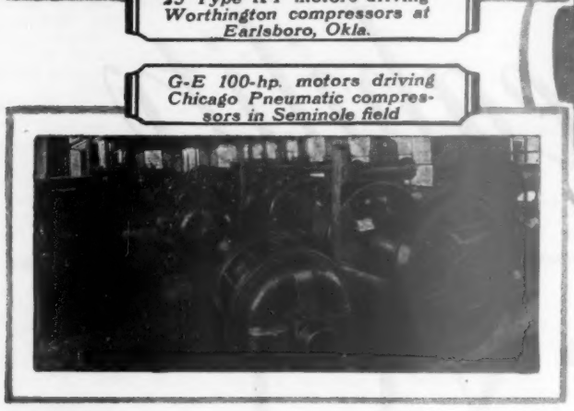

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GENERAL ELECTRIC

Eastern Production Declined in May

With Same Number of Completions Output Was Less Than Half of April With Fewer Dry Holes and More Gas Wells

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., June 3.—With all districts in southwest Pennsylvania, West Virginia and southeast Ohio heard from, these fields made a rather poor showing during May compared with the preceding month. Almost the same number of wells are completed, but the new production was only about one-half as much in May. This is disparaging in view of the fact that there is a shortage of the Pennsylvania grade crude. There were fewer dry holes and an increased number of gas wells completed. Southeast Ohio completed in May a larger number of gas wells than for any month in a year. At the same time the deep sand territory fell short of large producers and in the aggregate gave but 555 bbls. new production for the month. At the close of the month there was very little difference in new work under way and starting.

The one thing needful to start up active operations is the discovery of some strictly new producing territory. Operators can no longer become greatly interested in operations in the old districts, where light pumpers are the best to be expected. When operators look for new territory they find they are up against a hard proposition.

SOUTHEAST OHIO

No very large producers were completed during the week. All of the best are located in the deep sand territory in southeast Ohio. In Section 2, Perry Township, Licking County, W. J. McClay and others completed in the Clinton sand a test on the Emmet E. Hoover farm. It produced 80 bbls. the first 24 hours.

In Section 6, Clarke Township, Coshocton County, the Ohio Oil Co. completed and shot in the Clinton sand a second test on the F. J. Mullett farm. It produced 80 bbls. the first 24 hours. In the SE Section 24, Washington Township, Hocking County, the Gordon Oil Co.'s No. 9 on the Robert Stone farm is a 25-bbl. producer.

Perry County

In the SW Section 17, Harrison County, the Ohio Fuel Gas Co. completed and shot in the Clinton sand a test on the George Gabriel farm. It produced 80 bbls. the first 24 hours. In the NE Section 4, Jackson Township, J. Elder & Co. completed No. 4 on the Alva Poling farm. It is a gasser in the Berea grit good for 200,000 feet.

In Section 23, Green Township, Hocking County, the Chartiers Oil Co. has rig material at a location on the John T. Nutter farm. In the same township, Perry Sturm and others are drilling on the Woodruff heirs' farm. In Falls Gore Township, the Brownlee Oil & Gas Co. is drilling on the John Burgess farm. The Chartiers Oil Co. is drilling No. 211 on the Hocking Valley Products property.

In Section 11, Salem Township, Washington County, J. C. Carner and others completed in the Berea grit a test on the James Blair farm. It is dry in all formations. In Section 22, Franklin Township, Monroe County, Myers, Gerber & Co. have a light pumper on the J. L. Curtis farm. In the same locality, Gordon G. Greene is drilling on the Matthew Brown farm. In Section 24, Jefferson County, E. P. McGinnis and others are drilling on the Henry J. Heil farm.

In Ward Township, Hocking County, A. H. Squires & Co. have a very light pumper in the Clinton sand at No. 19 on the Cobb-Bradley farm. In Section 36, same township, the Northern Development Co. has a duster on the J. I. Payne farm.

In Section 2, Washington Township, the Preston Oil Co. has a gasser in the Clinton sand at a second test on the Marcia Hughes farm. In the same district, the same company is drilling on the John Berry farm. In Cambridge Township, Guernsey County, the following tests are drilling: J. T. Matson & Co., Robert McMurray; Ohio Fuel Gas Co., Lenora Black and Grace Miller; Leo Sewell & Co., W. L. Spail; and Ohio Fuel Gas Co., Hallie Ashley. In Wheeling Township, the Logan Gas Co. is drilling a test on the J. S. Alloway farm.

In the northwest quarter of Section 20, Harrison Township, Perry County, the Ohio Fuel Gas Co.'s test on the Francis Moore farm is a gasser in the Clinton sand good for 200,000 feet. In Section 19, same township, Ralph Brothers, Inc., have a gasser in the same formation good for 800,000 feet.

In the southwest quarter of Section 17, Harrison Township, Perry County, the Ohio Fuel Gas Co. completed in the Clinton sand a test on the J. W. Burley farm. It is a gasser good for 200,000 feet.

In Section 17, Sutton Township, Meigs County, R. C. Miller completed a second test on the W. B. Cross farm. It is a 10-bbl. pumper in the Cow Run sand. In the same township, the Preston Oil Co. has started to drill on the Carl J. and William R. Easterday farm.

In Seneca Township, Noble County, Rich Brothers & Co. have completed a second test on the Arthur Rich farm. It is a 2-bbl. pumper in the Berea grit. In Olive Township, Meigs County, the Wehrle Co.'s test on the F. C. Andrews farm is a duster in the same formation.

In Sutton Township, the Pure Oil Co.'s No. 3 on the John F. Hamm farm is a 4-bbl. pumper. In the same township, the Preston Oil Co.'s test on the Nial Salser farm is a 5-bbl. pumper.

NORTHEAST OHIO

Several counties in Northeast Ohio have been attracting a good deal of attention recently. Located near Mecca, north of Warren, Trumbull County, Norwood P. Johnston, of Pittsburgh, Pa., is drilling on the Gauga Realty Co.'s property. The Clinton sand is the objective formation and should be reached at a total depth of about 4,200 feet. Mr. Johnston stated that by the last report he had had from the contractor the well was drilling at 3,150 feet. The nearest location to this well is one drilled some years ago, about 12 miles to the northeast. It came in a duster. Some years ago, Shaffer Brothers, of Pittsburgh, Pa., drilled a test in Canneaut Township, and got a gasser good for 2,000,000 feet in the Clinton sand. Mr. Johnston is also drilling a test at Canal Hutton, Lawrence Township, Stark County. He is looking for an extension to the development in Summitt Township.

It is reported that the Ohio Fuel Co. has taken up leases in Ashtabula and Trumbull Counties to the extent of 164,000 acres. Other companies and individuals are said to have large holdings in the adjoining counties.

WEST VIRGINIA

On Hartley Run of Sandy Creek, Jackson County, the Heck Oil Co. has completed and shot in the Berea grit No. 4 on the George Kuhl estate. It is not better than a 2-bbl. pumper. On Twelve Pole Creek, Harvey district, Mingo County, the Public Gas Corp. has drilled No. 3 on the Henry Marcum farm 285 feet deeper and has a gasser good for 2,000,000 feet.

On Comb Run, Grant district, Ritchie County, J. W. McGinnis & Co. have completed in the Big Injun sand No. 6 on the United States Oil Co.'s lease. It is a light gas well. On Plum Run, Lincoln district, Marion County, the Carnegie Natural Gas Co. has a light gasser in the Gordon sand on the Stephen Fluharty farm.

On Bull Fork of Tanners Creek, DeKalb district, Gilmer County, the Golden Gas Co. has the rig completed for a second test on the George Miller farm, 1 mile in advance of production. On Eli fork of Cobbs Creek, Washington district, Lincoln County, the Harvard Gas Co. has moved a drilling machine to a second location on the Standard Fuel Co.'s farm, 1,600 feet west of the first test.

On Bull Fork of Tanners Creek, DeKalb district, Gilmer County, the McCall Drilling Co. has completed in the Maxon sand a test on the M. H. Frymier farm. It is a gasser good for 500,000 feet. In Union district, Ritchie County, the Pittsburgh & West Virginia Gas Co. has completed in the Maxon sand a test on the J. E. Pierce farm. It is also a gasser good for 1,500,000 feet.

Shooting Increases Production

In Sherman district, Calhoun County, the Hope Construction & Refining Co. cleaned out and shot its first test on the F. H. Barr farm and increased its production from 5 to 12 bbls. a day. On Walnut fork, Elk district, Kanawha County, the Virginian Gasoline & Oil Co. shot No. 18 on the J. F. Brown tract, and increased its production from 10 to 25 bbls. a day in the Squaw sand.

On Devil Hole Creek, Grant district, Ritchie County, the South Penn Oil Co. has completed a test on the Aaron Simmons farm. It is dry in all formations. In Troy district, Gilmer County, C. M. Bennett & Co. completed in the Big Injun sand their test on the D. D. Burton farm. It is a gasser.

Hess and others have completed in the Cow Run sand a second test on the Frank Hess farm, in Union district, Tyler County. It is a 5-bbl. pumper. In Sherman district, Calhoun County, the Hope Construction & Refining Co. cleaned out and shot its old No. 1 on the Okey Parsons farm, increasing its production from 7 to 15 bbls. a day.

In Grant district, Ritchie County, the First National Bank of St. Marys has completed No. 15 on the Ross estate No. 2 and is a duster in the Big Injun sand. In Murphy district, Dailey Brothers have a 3-bbl. pumper in the Mitchell sand at a second test on the James Adams farm.

Gas Wells in Boone County

In Sherman district, Boone County, the United Fuel Gas Co. has completed No. 2,525 on the Cole-Crane tract. It is a light gasser in the Big Injun sand. In the same district, the Miller Lang Co. has a fair gasser at No. 3 on the George P. Alderson farm. In Crook district, the Martin Oil Co.'s second test on the George W. Price farm is a gasser. In Peytonia district, the Owens Bottle & Machine Co. has a gasser good for 250,000 feet. In Logan district, Logan County, the Clendenin Gas Corp. completed a fair gasser at a test on the Boone County Coal Corp.'s property.

On Willow Island Run, McKim district, Pleasants County, the South Penn Oil Co. is moving a drilling machine to a location on the D. W. & I. C. Reynolds farm. In Curry district, Putnam

(Continued on Page 196)

OWENSBORO FIELD MORE ACTIVE THAN AT ANY PREVIOUS PERIOD

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., June 1.—The most interesting happening in the entire western Kentucky petroleum fields was the recent advance of 15 cents per barrel for crude oil by the Ohio Oil Co. and handled through the lines of the Illinois Pipe Line Co. This advance is bound to speed up field work to a large extent and operators are preparing for an active drilling campaign. A prominent operator says: "The present price of crude oil in this field is the best impetus for activity in drilling. There is more drilling now than at any other time in the history of the Owensboro Field, and more rigs are due in. One of these is the big rig which Paul Dahlgren has ordered from Oklahoma for a test on the Jennie Wilson lands at Bon Harbor in Daviess County. This test will be drilled for both oil and gas and if commercial production is not found in the Jett, Jackson or Barlow sands, will be drilled down in hopes of striking the McCloskey sand which has been such a heavy producer in the Bridgeport Field of Lawrence County, Illinois, where wells have been producing from that formation for close to 20 years. The Jennie Wilson lease contains 1,300 acres."

The most important well reported in the past week is Doctor Sirman's No. 16 on the Nancy farmer lease in the Friendship Church area of Ohio County, and without doubt the best find yet made in that part of the country, making 300 bbls. the first 24 hours. This makes 16 producers for this farm, some of them light wells but the larger majority were exceptionally good shallow producers. It is in this area that a line fight was waged for several months.

Eastern Kentucky

A few small producers along with some dry holes were reported in the eastern area of Kentucky. In Wayne County, District 5, the Davy Oil Co.'s No. 13 on the O. E. Gregory, was dry. Barrier Oil Co.'s No. 13 Randall Ramsey, same district is only a 1-bbl. pumper. In District 13, George A. Hook's second test on the Owen Rector, is dry, as is M. D. Shearer's No. 1 on the E. G. Guffey. William O. Southern Jr. is drilling No. 8 on the Nancy Jones and others farm, same district. Smith-Carnon Co. is drilling a second test on the Ed Nickles, District 3.

In the Irvine Field of Estill County, Sherman Smith has a dry hole in a test on the Matt Lowery, District 7, and the Gate City Oil Co.'s No. 7 John Patsey Marcum farm, is only about a 1-bbl. pumper.

In the Beattyville Field of Lee-Owsley Counties, J. D. Welch's second test on the W. C. Burgin farm, District 18, pumped 5 bbls. Superior Oil Co. is drilling No. 2 on the Calmes-Park farm, District 17.

Martin and Girard's test on the W. L. Bush Heirs, District 20, Wolfe County, is a 5-bbl. pumper.

In Johnson-Magoffin Counties, District 31, Hupp, Duff and others' No. 8 on the J. M. Frazier is a 20-bbl. producer, while the Rock House Syndicate's No. 3 Coon Adams farm is good for 10 bbls.

Warfield Gas Co. is drilling a test on

(Continued on Page 196)

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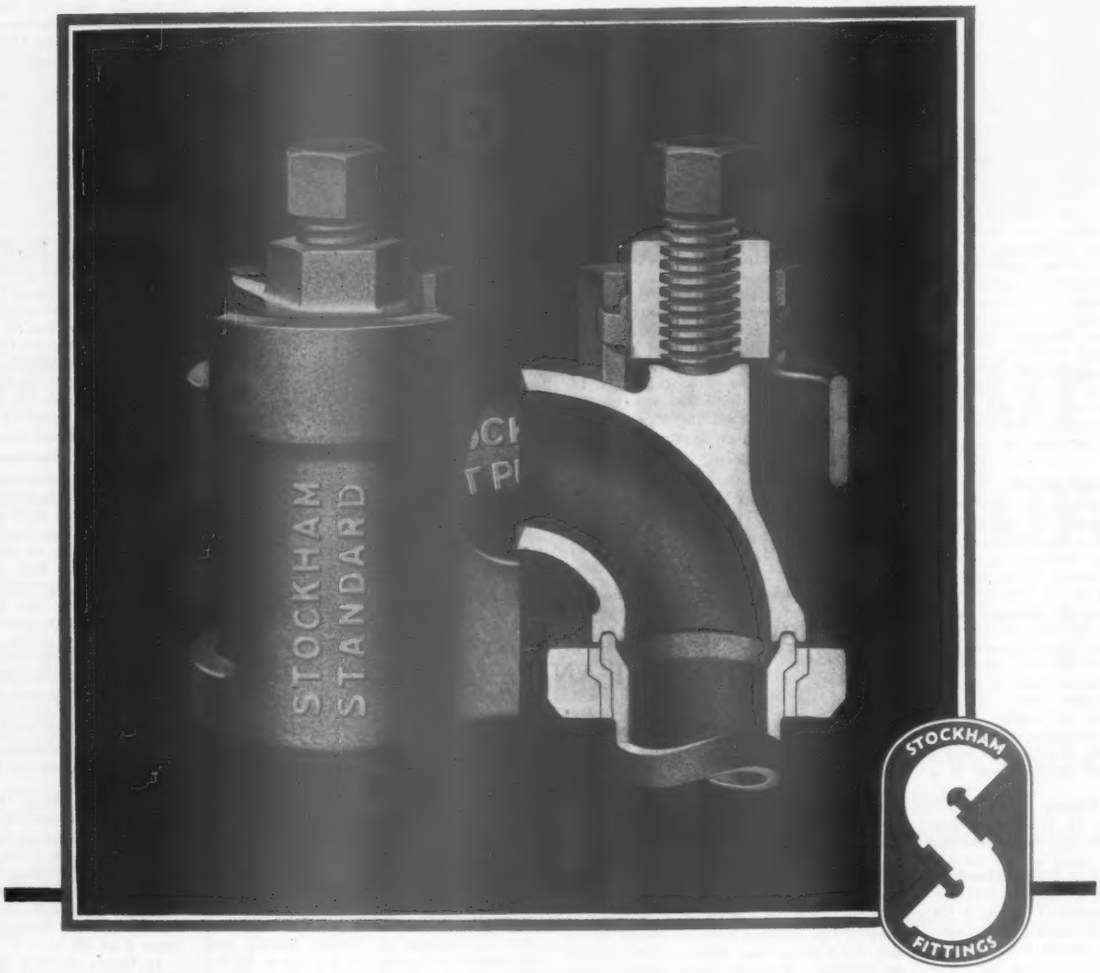

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Natural Gas Developments

TURNER VALLEY GAS FOR AMERICAN CITIES?

CHATHAM, Ontario, June 1.—At the instance of Charles Stewart, federal minister of the interior, conferences were held recently at Calgary and Edmonton in connection with the problem created by the large overproduction of gas in Alberta, and particularly in the Turner Valley Field. The conferences were attended by Mr. Stewart and Dr. Charles Camsell, representing the federal government; J. E. Brownlee, premier of Alberta; Dr. C. C. Ross, petroleum technologist; and representatives of gas producers and consumers and of the oil industry.

It was tentatively decided to name a joint special investigating commission to inquire into the entire situation and make practical recommendations. This commission will probably consist of four experts, two representing the province and two representing the federal government.

Discussing the waste gas question, Mr. Stewart stated that an application from the Range Oil & Gas Co. of Calgary for the right to export gas from the Alberta fields to Montana had been made to the Dominion government, but no direct action had been taken. No license for export to the United States had yet been granted, except a limited and conditional license in one specific instance where an international structure was concerned.

The government, Mr. Stewart stated, would have to weigh three questions before coming to any decision. The first was the possible life of the gas supply; the second, whether the gas would in the future be required locally; and third, the effect of exportation upon the quantities of gas running through other properties in the field.

The laying of a pipe line from Turner Valley to Montana would entail heavy expenditure, and the government wishes to be reasonably sure the venture will be a success from all angles before granting the necessary permit. At the same time the wastage of gas in the Turner Valley has assumed serious proportions and the government is willing to entertain any reasonable scheme for eliminating this waste.

More than a year ago the possibility of carbon black manufacture was investigated; and the scheme was being developed when added gas production in the United States sent prices down, and it was deemed unwise to continue with the project. Later, United States capitalists asked permission to pipe gas from the Turner Valley to Saskatchewan and Manitoba as far east as Winnipeg; but this venture was just taking definite shape when the development of gas in the Cypress Hills Field, 200 miles nearer the eastern markets led to the scheme being abandoned.

"The Dominion government is facing a very peculiar situation in the Turner Valley oil field," said Mr. Stewart. "A minute checkup of our properties showed that we owned only 30 per cent of the acreage. The biggest bulk of the property is owned by the Canadian Pacific Railway and Imperial Oil, Ltd. We had thought it might be possible to discontinue the issuing of leases, or making them conditional on provision by operators for gas conservation; but when we found that other interests could come right up to our property line and drill and drain the oil and gas from our land, this plan was abandoned."

In this connection the annual report of Dr. H. M. Tory, president of the National Research Council of Canada, states that the problem of commercial utilization of the Turner Valley gas has been under consideration for some time by that organization. Investigation has been under the direction of Prof. M. C. Boswell of Toronto University. The report sums up the Alberta situation as follows:

"The most important Canadian occurrences of natural gas are in the province of Alberta, although some gas also occurs in commercial quantities in Ontario and New Brunswick. In Alberta the gas is frequently found while drilling for oil and the amount thus discovered to date is far in excess of the ability of the industries of the province to utilize to advantage. Moreover, in many cases it is not economically feasible to cap the gas wells and thus retain the gas in the ground, since much of the gas is wet—contains condensible hydrocarbons similar to the constituents of gasoline—and the only way to recover these valuable light oils is to allow the gas to flow and recover them by suitable processes. When sufficient markets for cleaned gas are not at hand the only alternatives are to shut down the wells entirely or allow the gas to escape, and the latter alternative has been adopted in a considerable number of cases, with the result that the present volume of gas daily going to waste in Alberta is not far from 100,000,000 feet. It is highly important, therefore, to develop methods for the utilization of this waste gas."

DIXIE GULF-ARKANSAS NATURAL GAS CONTRACT

SHREVEPORT, La., June 1.—The Dixie Gulf Gas Co. has entered into a contract with the Arkansas Natural Gas Corp. for the sale and purchase of a minimum of 35,000,000 feet, and a maximum of 75,000,000 feet of gas per day from the Monroe and Richland Parish Field. The 20-inch line from the Monroe and Richland fields, being constructed by the Dixie, has been taken over by the Arkansas Natural and will be completed by it.

The Dixie will sell a minimum of 35,000,000 feet to the Arkansas Natural from the Monroe fields and purchase a similar amount at the Waskom plant for distribution to cities in East and South Texas.

To meet the contract the Dixie has contracted with two affiliated companies, the Greenwood Production Co. and the Richland Production Co., for the purchase of an equal amount of gas as that contracted for the sale to the Arkansas Natural. The agreement assures reserve for distribution by the Dixie through its Texas lines.

The Dixie, it was said, has supplemental contracts with the larger producers of the Monroe and Richland fields, the United Carbon Co., Natural Gas Producing Co., Palmer Corp., and the Interstate Natural Gas Co., which gives additional assurance of a reserve supply.

GAS FOR CONRAD, MONT.

CASPER, Wyo., June 1.—Two companies are contending for the franchise to sell natural gas in Conrad. The Citizens Gas Co. of Shelby has announced it will start work at once on an extension of its line from Shelby. Another local firm that obtained a conditional franchise from the Conrad council has announced plans to start work at once on a pipe line from Sunburst to Choteau and Conrad and both companies have posted bonds to have the gas in Conrad by October.

NEW CARBON BLACK PLANT

FORT WORTH, Tex., June 1.—Location of a new carbon black plant will be made on the Armstrong ranch in the Bazemore Survey, Hutchinson. The Godfrey L. Cabot, Inc. is to make the location of the plant which is to have a capacity of 25,000,000 feet of residue gas.

LOUISIANA GAS & FUEL CONSOLIDATION PLANS

SHREVEPORT, La., June 1.—Most of the details of the consolidation of a number of producing companies in the Monroe and Richland Fields into the Louisiana Gas & Fuel Co. have been disposed of and establishment of general offices in Shreveport will be accomplished within a few days. N. C. McGowen, vice president and general manager of the Palmer Corp., is president of the Louisiana Gas & Fuel Co. and H. C. Couch is chairman of the board. Mr. Couch is also the principal figure of the Mississippi, Louisiana and Arkansas Light & Power companies, and of the Louisiana & Arkansas Railway, which recently bought the Louisiana Railway Navigation Co. W. J. Parks and R. H. Hargrove are vice presidents of the new gas company.

Offices of subsidiary companies melded in the merger will be moved from Monroe and Bastrop, leaving only field offices in these two centers of the Monroe Field and at Alto in the Richland Parish Field. The companies in the consolidation are Industrial Gas Co., Palmer Corp., Natural Gas Producing Co. of Louisiana, Ouachita Natural Gas Co., Morehouse Natural Gas Co., Northern Louisiana Natural Gas Co., Southern Gas & Fuel Co., Panola Oil & Gas Co., Excelsior Pipe Line Co., U. S. Carbon Co. and W. W. Stalin. Producing wells owned by these several concerns have a total open-flow capacity in excess of 2,000,000,000 feet per day and are located in Caddo, Bossier, Webster, Union, Ouachita, Morehouse, Webster and East Carroll Parishes, and in Panola County, Texas, the company now ranking as the largest producer of natural gas in this division.

The merger also consolidates under one ownership gasoline plants in Cotton Valley and the Monroe Field parishes, and the Palmer Corp.'s plant now nearing completion at Alto in the Richland Parish Field, as well as pipe lines, gathering systems, loading racks, etc. Only one carbon plant will be operated, it is understood, the U. S. Carbon Co.'s plant at Uscarco in the Monroe Field. The company will be the principal source of gas for the Interstate Pipeline Co. to New Orleans, Baton Rouge, etc., the Mississippi River Fuel Corp. line to St. Louis, Southern Natural Gas Corp. line to Birmingham, Atlanta and Chattanooga, and others.

Palmer Gas Products Corp. takes over all the Palmer Corp.'s carbon plants in Louisiana and Texas, which will be operated under C. G. Hoff of the Palmer Corp. These consist of two four-unit plants at Borger, Tex., one at Swartz, Ouachita Parish, Louisiana, the Tire Carbon Co. two-unit plant, North American Carbon Co. two-unit plant, Palmer Carbon Co. four-unit plant in the Monroe Field and the Panhandle Carbon Co. two-unit plant in the West Texas fields.

GAS FOR JACKSBORO

FORT WORTH, Tex., June 1.—The Brazos River Gas Co., a subsidiary of the Upham Gas Interests, is busy laying a 4-inch line from the Lindsay-Thomason gasser, just south of the Bryson Pool, Jack County, down to Jacksboro, Tex., to supply the latter town with natural gas. This line will have approximately 500,000 feet capacity, and is to be finished around July 1 to begin serving the subscribers. Gas will be furnished for 67½ cents a thousand. W. R. Fullerton & Co. of Wichita Falls, Tex., are the contractors on this line, and are busy laying other lines in the county to surrounding towns.

"BLUE BLAZE" NAME OF LONE STAR'S MAGAZINE

The initial number of "The Blue Blaze," a monthly magazine devoted to the interests of the Lone Star Gas Co., Community Natural Gas Co., Dallas Gas Co., Fort Worth Gas Co., Municipal Gas Co., County Gas Co. and Meridian Gas Co., indicates that it will have a place among the best publications of its kind. William G. Grant is editor-in-chief and the office is in Dallas, Tex., headquarters of the Lone Star group of gas companies.

The first issue contains a greeting from L. B. Denning, president of the Lone Star Gas Co., in which he tells employes: "You are engaged in a great constructive undertaking, the delivery of the most efficient and convenient of all fuels to hundreds of thousands of your fellow citizens. May I have your full co-operation in our common task?"

Mr. Grant explains that the title, "The Blue Blaze," was suggested by William S. Henson, vice president of the Texas Publication House, which prints the magazine. "This title," he says, "is symbolic of the ideal of our company, namely, the delivery to our customers of a blue blaze, the most efficient of all heat."

FORT WORTH RATES

AUSTIN, Tex., June 1.—The order of the Texas Railroad Commission, issued July 18, 1928, denying the application of the Fort Worth Gas Co. for a higher rate to consumers, upheld by the report of W. H. Sanford of Wichita Falls, master in chancery, will be reviewed by the three federal judges appointed to hear testimony in the case. Sanford's findings set the fair value as of January 1, 1928, of the company's properties, plant and business at $3,845,878, and the average fair valuation for 1928 at $4,134,378. The Railroad Commission had set the fair valuation at $4,000,000. The city in its hearing before Sanford contended the property was worth only about $3,500,000. The company contended it was worth more than $6,000,000.

The present rate charged is 75 cents a 1,000 feet, less a 10 per cent discount for prompt payment. This rate has been in effect since October 1, 1920.

Sanford agreed with the Railroad Commission that 2 per cent is a fair annual charge for depreciation reserve and that a 7 per cent rate of return on the fair value of the plant and properties is not confiscatory.

EQUITABLE GAS SALES

Gas sales of the Equitable Gas Co. and affiliated gas companies during 1928 amounted to 23,480,152,800 feet, a decrease of 7.4 per cent compared with 1927. The discontinuance of one large temporary consumer, a nonaffiliated gas utility, was principally responsible for this loss. Domestic gas sales were slightly lower but commercial and industrial sales increased. Improvement was shown in the domestic heating business and all new business obtained during the year was apparently of a permanent nature. Gross earnings of the Equitable Gas Co. and affiliated gas companies for 1928 amounted to $12,749,360, a decrease of 3.8 per cent. Net earnings, before retirement (depreciation) reserves, amounted to $4,077,715, a decrease of $761,667.

EASTERN MONTANA GAS

The South Dakota School of Mines at Rapid City, has published a bulletin on the natural gas development in eastern Montana and its utilization in the Black Hills in South Dakota.

IT HAS BEEN SAID:

"All Things That Go Up Must Come Down"

The average executive is completely "up in the air" regarding the proper gas burning equipment to use under his boilers and stills.

He often leaves it to the boiler room operator, who is either afraid to recommend the installation of a reputable gas burner on account of price or who wants to show the boss that he "knows all about gas burning" and so puts in a burner of his own make. He usually designs a cheap gas burner from a piece of pipe with a gas nozzle in front of it and convinces his "boss" that it is just as good as the burner equipment that required years of labor and toil and much expense to produce.

The first thing the "boss" knows is a requisition for new refractories in the combustion chamber, then some boiler tubes and, finally, he is forced to discard the old boiler and put in a new one.

It Pays to Investigate

The METTLER ENTRAINED COMBUSTION GAS BURNERS have now been in use over six years in some of the largest plants in the world, obtaining and maintaining the highest possible efficiency over boilers, furnaces and burners without the usual injury to the refractories and heating surfaces.

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

WHAT MAKES IT STICK?

In pumping a well in the Cushing Pool trouble has been experienced with the steel ball in the standing valve sticking, and it has been suggested that this condition is due to the presence of lodestone somewhere near the well which has magnetized the steel seat and caused the ball to stick. Do you think that changing to a brass ball or using an alloy seat for the valve would eliminate this trouble?—C. A. B.

The dictionary definition of lodestone (or loadstone) is "A piece of magnetite, with polarity like that of a magnetic needle." Magnetite is an iron compound, made up of $Fe_3O_4 = FeO . Fe_2O_3$. It is strongly magnetic without heating and "brittle."

All geologists seem to agree that this metal was deposited where found in a molten or partly molten state, and this would indicate that the flow must have been upward; and if such a mass could be deposited in a sedimentary formation, such as is necessary to contain oil and gas reservoirs, the very fact that it must be intruded into the mass while hot would preclude the chance of oil or gas existing in that vicinity.

If magnetite were causing the steel valve-ball to stick, then it would have to be assumed that the magnetite mass was large enough to magnetize the ball or the seat to a point where it was resisting the pressures exerted below the ball by the forces acting on it by the fluid flowing in from the well and the partial vacuum created above the ball by the upward movement of the traveling valve.

It is not known where this idea of loadstone near oil or gas wells originated, but it is a matter of record that magnetities have been found in the Adirondack Mountains in New York which have been associated in all cases with basic igneous rocks, which have been intruded into older gneisses and crystalline limestones. The term "basic" as applied to igneous rocks in this instance refers to dark colored heavy minerals containing iron, but poor or wanting in quartz.

Magnetic iron pyrite (pyrrhotite) has been found in Lancaster County, Pa., in the Gap Mine, where the ore occurs in a hornblende-rock which has been thrust up into mica-schists. These occurrences and perhaps others seem to indicate that the older drillers might have been familiar with magnetite and knew of its characteristics and when they experienced trouble of the kind described in pumping wells assumed that it was due to some magnetizing body near the oil sand.

The theory of a magnetic body near the well was apparently strengthened by the well-known fact that steel drill bits under certain conditions when pulled out of the well during drilling operations will attract small iron objects. This, however, is more than likely caused by a charge of electricity being set up by the friction and pounding of the bit in drilling. Also Gilbert in 1600 showed that if a bar of steel be heated to redness, and cooled either slowly or suddenly, while lying in the magnetic meridian, it acquires magnetic polarity. No such property is acquired if it is cooled while lying east and west. This might account to some extent for the magnetic qualities displayed by these drilling bits.

It is believed that the real reason for the sticking which is described can be explained better by the fact that two highly polished surfaces, such as the face of the seat and the outside of the ball can be made to "seize" by applying heavy pressures after the surfaces have been slightly abraded, or a varying temper in metals has been used. Pounding of the valves, a not uncommon occurrence when pumping, could cause the abrasion, or cause the metals to change their original temper, through a chemical reaction. Mechanical reasons as mentioned here and others seem much more reasonable in explaining why the balls and seats stick together. The use of brass or bronze balls has not always proven successful in eliminating this trouble.

MEANING OF VAPOR PRESSURE

I have often heard the term "vapor pressure" used in connection with making tanks tight to stop evaporation and will appreciate it if you will tell me just what this term means when used in this manner.—D. N. E.

A definition of this term as given by J. H. Wiggins, in Bulletin 200, issued by the Bureau of Mines and covering "Evaporation Loss of Petroleum in the Mid-Continent Field," is:

"The vapor pressure of a liquid is the pressure that the vapor from the liquid will set up in a vacuum before evaporation ceases, or it is the partial pressure that the same liquid would set up in a closed vessel containing air."

Mr. Wiggins goes on to explain that for the same liquid this pressure will vary, rising with increase of temperature. Hence vapor pressure determines the proportion of gasoline vapor that a given volume of air will take up. The lighter the fraction distilled from the crude oil, the greater is its vapor pressure. The percentage of gasoline necessary to saturate air varies as the gravity of the gasoline changes.

This makes it difficult to predetermine any fixed pressure that should be placed on a tank in sealing it against evaporation losses if it is attempted to take into consideration the vapor pressure of the oil. In any event, it will be quite high, and a table prepared by Wilson and Barnard, and given in Technical Paper 319 of the Bureau of Mines, shows that the vapor pressure of an average sample of oil varies from about 3 inches of mercury pressure at 45 degrees Fahrenheit to slightly over 24 inches of mercury pressure at 200 degrees Fahrenheit.

The upper range of temperatures given in this chart is, of course, much beyond those that would be normally expected in tankage, but if 90 degrees Fahrenheit is taken as a comparative condition, it is found that this would equal 5 inches of mercury or would develop a pressure of 2.45 pounds per square inch above atmospheric pressure. This pressure would be too great for use on the ordinary type of bolted steel tank, and there would be little to be gained by it even if it could be applied, for as a matter of fact, if the tank is sealed at a pressure slightly above atmospheric, say from 3 to 9 ounces, evaporation losses will be reduced to almost nothing, and such losses as do occur will be those caused by the "breathing" of the tank, that is, the expelling of heated air saturated with light hydrocarbons during the day under higher temperatures and the drawing in of cooler air at night, which must be in turn saturated with hydrocarbon vapors. Bureau of Mines Bulletin 200 and Technical Paper 319 by J. H. Wiggins cover the subject of evaporation losses quite fully.

WHY IS IT CALLED THAT?

FOUNTAIN WELL

The first well drilled to the famous "third sand" on Oil Creek in Pennsylvania was completed in May, 1861, by Captain A. B. Funk and it was named the Fountain well because it flowed about 300 barrels a day. It was the deepest oil well of the period too, reaching pay at the then unprecedented depth of 460 feet. Prior to this sensational strike the total production of petroleum, all of it coming from a small area in western Pennsylvania, was about 1,300 barrels. When the 300 barrels from Captain Funk's gusher was added, there was overproduction and depression of prices. The Fountain well continued to flow for 6 months and then suddenly stopped, choked with paraffin.

WHAT IS A ROCK?

I have been working in and around the oil fields for several years and have heard the term "rock" used to cover a number of things. Will you please tell me just what rock is?—C. F.

The word "rock" generally is taken to mean the solid parts of the earth's crust. As a geological term it means not only all masses of consolidated material, but also all loose materials, such as soils, clays, and gravels that lie on or near the surface. There are really three general types of rock, igneous, sedimentary and metamorphic.

The word "igneous" comes from the Latin "ignis," which means fire, and igneous rocks are those formed by heat intense enough to melt the materials of which they are made. Granite is one of the igneous type rocks.

Sedimentary rocks are formed from sediments that have been carried to their present place in the earth's surface by water or wind action and in addition to being portions of older rocks broken up by the elements may also contain fossil remains of plants and animals or fishes that were present on the earth when the sediments were deposited. Shale is a type of sedimentary rock, being mud-like material pressed together after settling out of water that formed old streams or seas.

The metamorphic rocks cover a class of formation that has passed through three phases. First igneous rock was broken up into fine particles by the elements and changed to sands and clays. These sands and clays were deposited at the bottom of some body of water where they were consolidated into hard masses. These masses as a result of heat generated by pressure and movement or perhaps a combination of the two were transformed back into a type of rock that is somewhat like the igneous material from which it originated.

This of course does not go back to the basic idea contained in the question, for the explanation given here covers the form in which rock occurs rather than tells what it really is. To get to the fundamental question of what the source of rock is it would be necessary to go back to the origin of the universe. However, it may be briefly stated here that rocks are collections of atoms of various elements gathered together in various shapes and having widely different characteristics.

EQUIPMENT TO BLAME

I am losing a lot of oil because of b. s. forming. I don't know just what percentage is going to waste in that way, but I do know that it is big enough to make a serious loss for me. Although I have had this trouble for years it is getting worse all the time. If there is anything I can do to stop it I would like to know what it is. I have read of preparations and seen them advertised for remedying this kind of trouble, but I don't know much about them or whether they would suit my case anyway. One oil man told me he thought my pumping outfit might be to blame. I don't understand how that could be true exactly, though this man knows the oil business. I have 14 wells, all old producers and none of them big. Three are on the beam and the others are on the jack. My equipment is pretty old and worn, but it is still giving good service. If you can tell me any way I can reduce my loss from this cut oil, even if it can't be stopped altogether, I will be very much obliged to you.—T. N. S.

Emulsion can form in oil wells only where water is present to emulsify with the oil. Consequently the first thing to do is to see if you can exclude the water from your wells without too great cost.

The next thing is to try using new pumps that you know are in good tight condition. A great deal of emulsion trouble is caused by leaky pumps that churn the fluid without lifting it efficiently. Emulsions are formed by the agitation of oil and water and if you can reduce the agitation by eliminating pump leakage, you probably can reduce the emulsion. You say that you are using equipment that is pretty old and worn. If your pumps are in this condition you certainly should try the use of new pumps.

Sometimes old working barrels become coated on the inside with a thin deposit of gyp which cuts the caps and eventually causes enough leakage to give emulsion troubles. You should make every effort to eliminate pump leaks and reduce the churning or other agitation of the fluid.

Alkaline reagents have been introduced into wells to reduce emulsion troubles. In this connection you might refer to the answer to a question by O. D. R. in Field Problems and Their Solution, page 70, in The Oil and Gas Journal of November 8, 1928.

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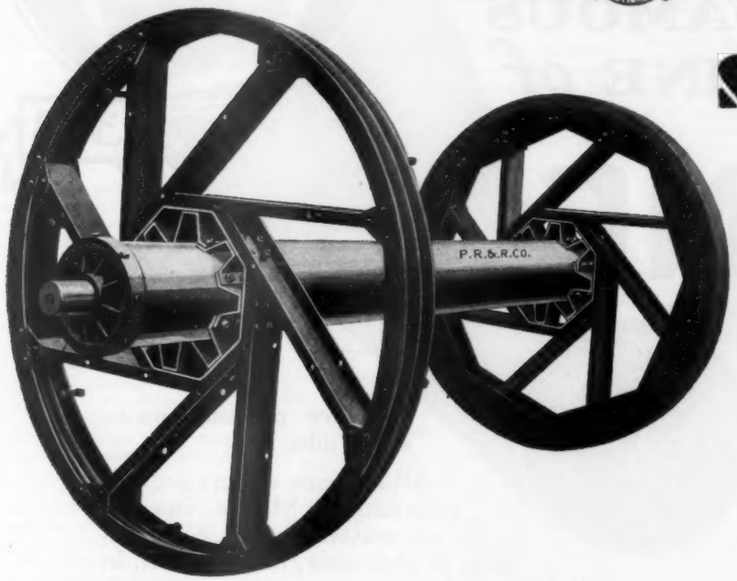

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Gudgeons are pressed into shaft under hydraulic pressure then bolted through shaft and gudgeon band—they can't come loose.

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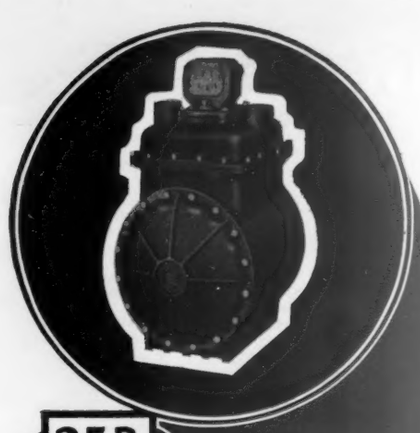

Two new additions to the... FAMOUS LINE of IRONCASE

METRIC METERS

THE two new Ironcase Meters, 25-B and 35-B, each with two pressure ranges, fill in and make a complete line of meters of one type that will meet a comprehensive range of service requirements.

They fill the gaps that formerly existed between the 20-B and 30-B and the 30-B and 60-B Ironcase sizes. Comparison with the nearest older sizes (see table) shows the need for meters with the capacities of the new sizes, and also the advantages represented in their construction.

In construction, they are endowed with longer wearing qualities under the stress of higher pressure measuring jobs.

All Ironcase meters are representatively Metric—in quality of materials and construction, in character, in operation, in reliability and in accuracy. They are made to meet a wide range of service for high, medium and low pressures. The complete line-up includes these sizes: 5-B, 10-B, 20-B, 25-B, 30-B, 35-B, 60-B, 80-B, 250-B and 500-B. All except 10-B are made in two pressure ranges and 60-B and 80-B are made in three pressure ranges.

For the complete Ironcase story, write for bulletins.

Model	Capacity Cu. Ft. per Hour .60 Gravity Gas		Maximum Working Pressure	Net Weight Lbs.
	½" Loss	2" Loss		
20-B	350	600	10	76
20-B	350	600	10-250	180
25-B	400	810	10	95
25-B	400	810	10-100	100
30-B	550	950	15	134
30-B	550	950	15-250	420
35-B	650	1,150	15	135
35-B	650	1,150	15-100	140

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EQUIPMENT AND SUPPLIES

Drilling Troubles Reduced by Aquagel Say the Inventors

Drilling troubles growing out of caving formations have turned attention to a product which, according to its inventors, Dr. Roy Cross and W. A. Collings, goes far to eliminate these troubles when it is introduced into the rotary mud. This substance is aquagel, in the development of which Dr. Cross and Mr. Collings devoted seven years of experimentation before offering it for commercial use. Dr. Cross says concerning this new product:

"Aquagel is used fairly extensively in the building trades for incorporation into cement, mortar or concrete. It is a silicate material similar in chemical composition to portland cement and forms a gel-like mass when mixed with 25 times its weight of water.

"Aquagel, however, does not have hydraulic properties to the same extent as portland cement and therefore does not harden to a dense, tough mass, always maintaining in the presence of water its gel-like consistency. The thinness of the gel of course is governed by the amount of water added. Enough water may be added to produce a mixture not unlike lubricating oil in consistency.

"Because of these unusual properties, aquagel has recently been applied to oil wells to facilitate drilling. It has been widely used in the Kettleman Hills and the Santa Fe Springs Fields in California. In the first well at Kettleman Hills several hundred tons of various types of muds had been used without success in the attempt to restore circulation. As a last resort, aquagel was brought on the job and circulation was immediately restored.

"Aquagel has been effective in facilitating drilling in many respects. Its lubricating properties are marked, greatly reducing friction of the slush pump. It also plasters the walls of the hole, preventing cave-ins and facilitating the landing of the casing.

"In a number of wells in which it has been used it was an important factor in holding in suspension weighting materials necessary for holding back gas and salt water. While in itself it does not increase the specific gravity of the mud-laden fluid, it makes possible the distribution of the weighting materials uniformly throughout the entire mud-laden fluid. It prevents the segregation of the heavy weighting material such as barytes or hematite from packing in the bottom of the hole and, even when the slush pump is temporarily stopped, it prevents any accumulation of the weighting material about the tools.

"The use of aquagel has been particularly effective in the Santa Fe Springs Field in California, where there has been trouble in losing circulation when drilling through the old Meyer strata. Circulation has been immediately regained merely by adding the aquagel to the drilling mud. Some operators are making a practice of using aquagel at all times during the progress of drilling for purposes of lubrication alone. It has been found to be particularly advantageous in loose and caving formations, as it maintains the integrity of the wall of the hole.

"Aquagel is being sold in the Mid-Continent Field by the International Minerals and Metals Corporation of 61 Broadway, New York."

The Brown Instrument Co. of Philadelphia, Pa., has moved its Boston, Mass., office from 161 Devonshire Street to 1107 Public Service Building, Broad Street.

RETURN BEND REDUCES AMOUNT OF DOWN TIME

The new Stockham Fantz-type return bend, recently tested out under actual working conditions, was designed to save power, to reduce the time off stream for replacement or cleaning of tubes, and to increase the safety factor in tube cracking still operation.

The illustration shows the simplicity of the assembly and of the tube installation. Tubes are inserted through the tube sheets. The yoke is placed over a pair of tubes; the split rings are placed in the yoke; the yoke and rings

are slid back against the upset ends of the tubes; the U piece is then placed over the tube ends and a tight joint is made by means of toggle and lock screws.

Tube ends are not rolled in cold; they are up-set or rolled in the fabricating shop or at the mill, at the proper forging temperature. No preparation is needed at the tube bank. Tubes can be carried in stock all ready for use. Special alloy or treated tubes can be used. The proven type ring joint used does not stick and makes it easy to remove the U piece without injury. If a tube fails, or if it is desired to revolve or to remove a tube, a wrench and tongs make the operation simple.

The yoke is in one piece with ample strength to hold the U piece and tube ends together, yet with no excess weight. Since the yoke, toggles and lock screws are not in contact with the corrosive oils, these parts need not be replaced when changing tubes or U pieces, for they are subject to ordinary wear and tear only.

The U piece employed reduces friction to a minimum because of unobstructed smooth flow with minimum loss of pressure. The U piece is the only part of the assembly in contact with the corrosive elements in the charging stock and it can easily be replaced in a few minutes at small expense. It is also apparent that the U piece is the only part which need be a special corrosion resisting alloy if conditions require other than the usual electric carbon steel. The U piece can be removed easily and quickly for cleaning.

The Stockham Fantz-type return bend is manufactured by the Stockham Pipe & Fittings Co., Birmingham, Ala., to meet any specifications for pressure, temperature, tube diameter and tube spacing.

TRADE LITERATURE RECEIVED

A bulletin published by the Griscom-Russell Co., New York, explains in detail the various types of G-R shell and tube subcooling and partial condensers, heat exchanges, coolers and heaters and their applications in refineries and gasoline plants.

Goulds Pumps, Inc., Seneca Falls, N. Y., is distributing a reprint of an article on "The Occurrence and Elimination of Surge or Oscillating Pressures in Discharge Lines from Reciprocating Pumps," by Professor H. Diederichs, Cornell University, and W. D. Pomeroy, general manager of Goulds Pumps.

Details of its recently developed line of vertical gas engines are given in a bulletin being sent out by the Chicago Pneumatic Tool Co., New York.

The Wagner Electric Co., St. Louis, Mo., has issued a new revision of its bulletin 151 on air-jacketed motors, containing a discussion of dust, fume and moisture problems involving the need for special protection of motor and property.

"The M.M.M. Family Tree" is the title of a bulletin issued by Manning, Maxwell & Moore, New York, designed to explain the various branches and products of the company. Consolidated Ashcroft Hancock Co., Inc., maker of a variety of oil industry equipment, is the principal subsidiary.

The first number of the Worthington News, published monthly by the Worthington Pump & Machinery Corp., Harrington, N. J., has appeared. Frank J. G. Duck is managing editor of the publication, a 4-page newspaper filled with news of the company's activities and its employes.

William W. Nugent & Co., Inc., Chicago, is sending out a bulletin illustrating sight-feed valves, sight-feed oilers, capillary oilers, sight flows, alarms, oil cups, etc.

SPECIALTY OIL TOOL CO. HAS NEW SALES POLICY

R. J. Eiche has been appointed general sales manager of the Specialty Oil Tool Co. of Los Angeles, Calif., in charge of domestic and foreign sales. Mr. Eiche until recently was associated with Vickers, Ltd., of London, England. The Spe-

R. J. Eiche

cialty Oil Tool Co., which has paid particular attention to foreign markets for its tools, is planning changes in its domestic sales policy. In the future the practice of leasing tools will be replaced by a plan of outright sales.

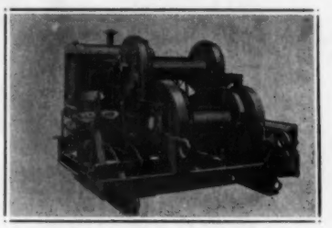
HARBISON-WALKER CHANGES

At a meeting of the board of directors of the Harbison-Walker Refractories Co., Pittsburgh, Kenneth Seaver and Raymond Willey were elected vice presidents. Mr. Seaver had been general sales manager since 1921. Mr. Willey had served as district superintendent and works manager and since 1916 had been assistant to the vice president. W. B. Coullie was made general sales manager to succeed Mr. Seaver. G. G. Coolidge was appointed assistant to the president. He had been assistant general sales manager.

DOUBLE DRUM MASTER WINCH EASILY MOVED

In response to a demand for oil and gas companies operating wells on scattered leases, the W-K-M Co., Inc., Houston, Tex., has developed in addition to its line of oilfield winches, a double-drum master winch in a 68-horsepower model.

The upper drum is designed for spooling a bailing line, and is suitable for high-speed work. The lower drum, mounted on Timken tapered roller bearings, is for spooling the tubing line. Both drums



have three speeds forward and reverse, instantly selective through a heavy-duty Cotta transmission. All controls are arranged for operation almost exactly as an automobile is operated.

The unit is mounted on heavy steel skids and is designed to be transported on the platform of a truck or an Athey truss wheel wagon, enabling the owner to handle wells on widely scattered leases. Wells may be pulled while the machine is mounted on the truck, or the unit may be skidded to the ground and operated there.

BUSINESS NOTES

The Imperator Oil Corp. has moved its offices from the Petroleum Building in Fort Worth, Texas, to the Praetorian Building in Dallas, Texas.

A motion picture portraying the construction of arc-welded pipe lines has been released by the Lincoln Electric Co., Cleveland, Ohio. The film, which shows each step in the work, is offered gratis for showing upon application to the company.

C. F. Braun & Co. have opened a sales and engineering office in the Russ Building, San Francisco, with Milton H. Roths as manager.

The Wagner Electric Corp., St. Louis, Mo., has appointed L. G. Tandberg as branch manager of its Los Angeles, Calif., sales office.

Neil Currie Jr., managing engineer of the motor department of the Pittsfield works of the General Electric Co. for the last 5 years, has been named manager of the Philadelphia works of the company. Robert V. Good, section superintendent in the Schenectady works, has been named assistant to the manager in Philadelphia.

MacCLATCHIE MAKES CHANGES

Inauguration of a larger field service department and several additions to the sales staff have been announced by the MacClatchie Manufacturing Co. of Compton, Calif., makers of oil field specialties. R. Nelson Walker, of Whittier, heads the service department as service engineer. Leon O. Myers, formerly a driller and recently with the Oil Tool Exchange, has been appointed MacClatchie representative in Bakersfield. Q. W. Taylor, formerly stationed in Bakersfield, now has his headquarters in the Compton office. George A. Latimer also has been added to the Compton sales staff. Mr. Latimer had been with the Master Lubricants Co. for four years.

NORTH + SOUTH

Now!

vacation days *are here*

The AUTO CARAVAN *is on its way* - - - -

BARNSDALL

THE WORLD'S

Refineries: BARNSDALL OKMULGEE WICHITA *Sales Offices:* TULSA

+ EAST + WEST

VACATION days have made the highways of the nation pathways to pleasure. The automobile has made it possible for the man from California to fish in Maine .... the Southerner to visit the great Cities of the East .... in the summer the Northern golfer tries a Southern course and the family from Texas enjoys the cooling waters of Minnesota. West tours East and South travels North.

To Barnsdall Jobbers and Dealers vacation days make up the business building months of the year .... for millions of motorists have come to look for the BE SQUARE, *the trade mark that stands for more enjoyable motoring miles.*

In 1860, almost 70 years ago, William Barnsdall, father of T. N. Barnsdall, the founder of BARNSDALL, *established the world's first oil refinery.*

FIRST REFINER

CHICAGO NEW YORK ST. LOUIS KANSAS CITY ST. PAUL LOS ANGELES

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry. Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

TANK CAR INITIALS

In oil tank car initials such as GRCX, TCX, PARCX, CONX, what is the significance of the final X? All tank cars do not have this final X, eg. STL.—W. S. P.

The railroads do not furnish tank cars to shippers of petroleum and petroleum products as they frequently do for other commodities. The tank cars are owned or leased and used by the shipper for the distribution of his products. Such cars are classified as privately owned and to aid in their identification the letter X is added to the others, which are usually chosen so as to be as near as possible the initials of the operating company.

Cars which are owned by the railroads use their own letters and the one you mention appears to be of this class, although we do not find it mentioned in the lists available.

GASOLINE BY FOUR POINT METHOD

Kindly outline in detail the "Four Point Method" for determining the gasoline content of a pressure distillate.—A. F. W.

The usual practice for obtaining the refining value of crude oil, or any of the lighter distillates obtained from petroleum, has been to determine the gasoline content. Unfortunately, all refiners do not classify gasoline in the same manner so that it is sometimes quite difficult to interpret analytical data of this sort. Some refiners grade a crude, for example, on the percentage of U. S. Motor gasoline that is obtained direct from the crude oil by distillation. Others consider all fractions that show within the temperatures of the distillation test for gasoline, a part of the gasoline content of the crude because these fractions may be blended with natural gasoline and thus make a commercial product.

The need for a uniform method to be used for the determination of the gasoline content of a crude oil is commonly recognized. The four point method of gasoline determination has been described by Howard G. Vesper of Ind. and Eng. Chem., Vol. 18, 64, 1926, under Laboratory Distillation Analysis of Petroleum. "The basis of the complete analysis is the so-called four point method of gasoline determination as developed by the Standard Oil Co. of California in 1922. It consists in the double distillation of the crude. The first distillation is carried to a temperature of 500 degrees Fahrenheit in the vapor and is a simple topping operation. The resulting naphtha is then distilled in a 500 cc. Hempel flask for gasoline and lamp oil. Upon this double procedure depends the special adaptability of this method to a complete distillation analysis. The preliminary topping operation provides a supply of naphtha sufficient to make several runs to determine the gasoline and lamp oil without the necessity of rerunning the crude. The operation is generally carried out in a seamless copper flask of about 4,000 cc. capacity. The topping operation is carried to 500 degrees Fahrenheit, vapor temperature, with a rate not to exceed 10 cc. per minute." Additional details are given in the text for handling crudes containing water. "The cutting temperature is always deep enough for any gasoline determination.

"The naphtha obtained is distilled in a 500 cc. Hempel flask, equipped with a 15cm. jack chain tower. Originally the four point method of cutting was to observe the quantities over at 221, 284, 392 and 437 degrees Fahrenheit, and then divide these readings respectively by 0.2, 0.5, 0.9 and 1. The distillation was continued to the lowest of these four calculated yields, and this fraction tested for gasoline by the A.S.T.M. method." Reasons are given for modification from the original to the following. The crude naphtha is distilled. The outline is—charge 300/400 cc. in a Hempel flask and distill, as above, observing percentages off at 200, 221, 284, 392 and 420 degrees Fahrenheit. If the per cent over up to 200 degrees is 5 per cent or less, multiply the per cent at 221 degrees by 5; if it is 5.5 or 6 per cent, multiply the per cent at 221 degrees by 4.5; if about 6.5 per cent or more, multiply the per cent at 221 degrees by 4. The per cent at 284 degrees is divided by 5; that of 392 by 0.9; that at 420 by 1. Cut the distillation at the lowest of these yields. The standard A.S.T.M. condenser is used and the rate of distilling 5/6 cc. per minute.

REFINING HIGH SULPHUR CRUDES

We run mostly West Texas crude and at different periods a small quantity of oil from southern Oklahoma is run with this. We follow the regular doctor treatment but get around 0.5 per cent sulphur in the gasoline, the color is good when we run the Texas crude but does not stand up when the other crude is run. Can you give me any reason for this?—E. T. N.

The West Texas crudes contain between 1 and 2 per cent total sulphur, and free sulphur, hydrogen sulphide, mercaptides and several other forms of organic sulphur have been identified in the distillates. When the fresh crude is distilled large quantities of hydrogen sulphide may be found in the gas; quantities varying between 1 and 2 ounces per cubic foot have been reported in the still-gas when reducing to fuel oil. The decomposition of this hydrogen sulphide is rapid, as indicated by the deposition of sulphur in the condenser coils, about the lookboxes, in the distributing lines, etc. A large part of this sulphur goes into solution in the gasoline and is not readily removed by the treating process. We have reason to believe that this free sulphur is responsible for some of the color troubles frequently experienced with gasoline made from this kind of oil.

Just why a mixture of gasoline, made from different crudes, will go off color to a greater degree than when the components are kept separated has been the subject of much discussion without any generally accepted conclusion. In the case of the West Texas gasoline it appears reasonable to explain the trouble as being caused by the free sulphur, because we know that poor color stability may be united with an acid condition, and free sulphur will, especially in the presence of a trace of moisture and the sunlight, form sulphurous and sulphuric acids.

Treatment with large quantities of sulphuric acid, double running, hypochlorite, fuller's earth, special clays, various metallic oxides, and vapor phase refining have been applied with more or less indifferent results. The treatment with alkaline substances, either during the distilling operation or immediately after the separation of the distillate, has improved the product in many plants. This is because the hydrogen sulphide is either totally removed or materially reduced before it has had time to decompose with the formation of free sulphur.

FILTER AIDS IN REFINING LUBRICATING OIL

I have looked in several books to get information about filter aids but have failed to get a description of them so will be glad to have any information you have on this subject.—W. G. L.

There was a complete article on the subject, "Mechanical Filter-Aids in Refining," by Eisenbast and Horine, appeared in The Oil and Gas Journal, January 10, 1929, page 140. The extracts below from this article may give you the desired information.

For many years the mineral oil refiner has used in his filtering processes such granular or finely powdered materials as fuller's earth, acid clays, etc., for the purpose of bleaching. Changes in refining processes have brought about the necessity for actual physical clarification by the removal of suspended impurities. Materials used for this purpose may be termed "mechanical filter-aids." These products are manufactured from diatomaceous silica. They differ essentially from materials used for bleaching in that they are chemically inert.

Diatomaceous silica filter-aids are produced in three distinct grades, giving different rates of flow.

The original diatomaceous silica filter-aid (filter-cel) is composed principally of amorphous silica, containing approximately 89 per cent of Si_4O_5, with about 4 per cent of combined water and 5 per cent of free moisture. The two other grades, standard super-cel and hyflo super-cel, are specially processed to give higher rates of flow than are obtained with filter-cel. These special grades are practically "bone dry" and contain approximately 95 per cent Si_4O_5. These materials do not react chemically with the oils. They do adsorb to a small extent but in most cases this action is negligible due to the small quantities which are used. Their primary function is to build a porous film against a retaining medium for the removal of turbidity, water, acid or salt solutions, wax, etc.

Any of the above three materials, when made into a slurry and pumped into a filter press, will form a cake weighing approximately 20 pounds per cubic foot.

In many cases it is advisable at the beginning of the filtration operation to establish a film or "precoat" of the pure filter-aid on the filter cloth. A liquid passing through such a film has been given a screening through a mesh infinitely finer than the finest wire or silk cloth. To form a film or filter-aid approximately one-eighth inch thick on a filter surface it is necessary to use about 15 pounds of the filter-aid per 100 square feet of filter area. For such a precoat on a commercial filter press with 600 square feet filter area it would therefore require 90 pounds of filter-aid.

Without a filter-aid the impurities either pass through the cloth, or, if the suspended particles are of a slimy nature, they soon smear the surface and completely seal the flow channels. The effect of the filter-aid is to lengthen the cycle of the filter and to insure perfect clarification from the beginning to the end of the operation.

The primary functions of filter-aids in the mineral oil industry are as follows:

1. The removal of turbidity,suspended salt, wax, small amounts of moisture, etc., by incorporation in a filter-aid cake.
2. The surface tension effect of breaking emulsions by passing through a filter-aid film.
3. Protection of the cotton, wool, or metal filter fabric from the corrosive action of acids and the scaling effect of clays on steaming out of cakes.

In the refining of petroleum there are a number of operations in which diatomaceous silica filter-aids are now being used.

COMBUSTION OF FUEL OIL

At times we notice deposits of soot or carbon about the burners opening in our still setting where we burn fuel oil and this suggests to me that when fuel oil is burned that it is changed to carbon first and I want to ask if this is true—J. C. M.

I am not certain that I understand the exact meaning of the question but presume that it involves the general principles of the chemistry of combustion. The simplest statement is that any fuel must be converted to a gas before there can be real combination with the oxygen of the air. It may be said that the carbon and hydrogen of the fuel is converted into water and carbon dioxide if the exact quantity of air that may be required is present. However, the combustion in the ordinary furnace is not so simple by any means.

We know that the ordinary fuel oil is a complicated substance. Some of the hydrocarbons present in fuel oil may be converted from the solid to the gas form with ease, others may be decomposed, through what is commonly called cracking, to simpler liquid and solid forms and these in turn to gases. In some of these conversions free carbon is formed, and as this burns slower than the gases there may be conditions where appreciable deposits of carbon will accumulate.

The subject of combustion is discussed in numerous books and an example of the status of the subject is indicated in the quotation below from Motor Fuels, by Leslie, under chapter VIII, The Thermal Reactions of Hydrocarbons.—"Much of the lack of information regarding hydrocarbon reactions may be attributed to the difficulty of the work. Pure high molecular weight hydrocarbons can be obtained only with difficulty. The apparatus necessary for accurate study of thermal reactions must be designed so that temperature, pressure, and rate of feed of oil or hydrogen can be controlled with utmost precision. Materials exerting catalytic influences must not be used in the construction of the apparatus. All of this involves care and expense. Finally, satisfactory analytical methods for ascertaining exactly what products are obtained are yet to be developed. In particular the methods for estimating and identifying liquid olefin hydrocarbons are unsatisfactory."

It must be recognized that there are so many factors to be considered involving the character of the fuel, the type of burner, the furnace, air supply and many other variables that it is quite impossible to give anything like an adequate explanation of combustion in so short a space as is available here.

Prescott Menominee Pump used by Magnolia Pipe Line at Big Spring, Tex.

POWERFULLY BUILT—

for pipe line service

EVERY part of Prescott Menominee pumps is made to meet the hardest conditions possible in oil field and pipe line service. Ample strength, plenty of power, and astonishing wearing ability always distinguish Prescott Pumps. They are either electric or engine driven and can be depended upon absolutely for steady, unbroken work.

Prescott Menominee electric pumps easily maintain an overall efficiency between 80 and 86% through a wide range of operating conditions.

Pumping costs are always kept at a minimum when Prescott Menominee Pipe Line Pumps are used. Both power costs and maintenance costs are exceptionally low. Complete information and performance records gladly sent on request. No obligation.

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Menominee, Michigan, U. S. A.

Pumps for deep mines ~ Pumps for pipe lines

OGJ 6-6 Gray

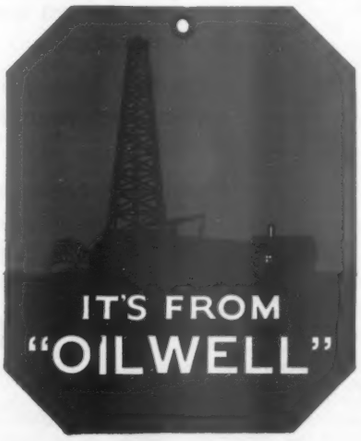
MAXIMUM

WORKING under an average steam pressure of 175 pounds, the "Oilwell" 12" x 12" Twin Cylinder Engine will develop 270 H.P. at 200 R.P.M., which is adequate for the most severe drilling. It is designed for 250 pounds steam pressure.

All working parts are enclosed and operate in a bath of oil. This safeguards the operator, increases the life of the engine, makes it safer for inspection and adjustment, and protects it from the weather.

Inquire at any "Oilwell" Store for complete information, or write for Bulletin No. 79.

"Oilwell" also makes an 11" x 11" Enclosed Type Twin Cylinder Steam Drilling Engine and a 12" x 12" Enclosed Type Oilbath Single Cylinder Steam Engine.



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WORLD'S OLDEST AND LARGEST
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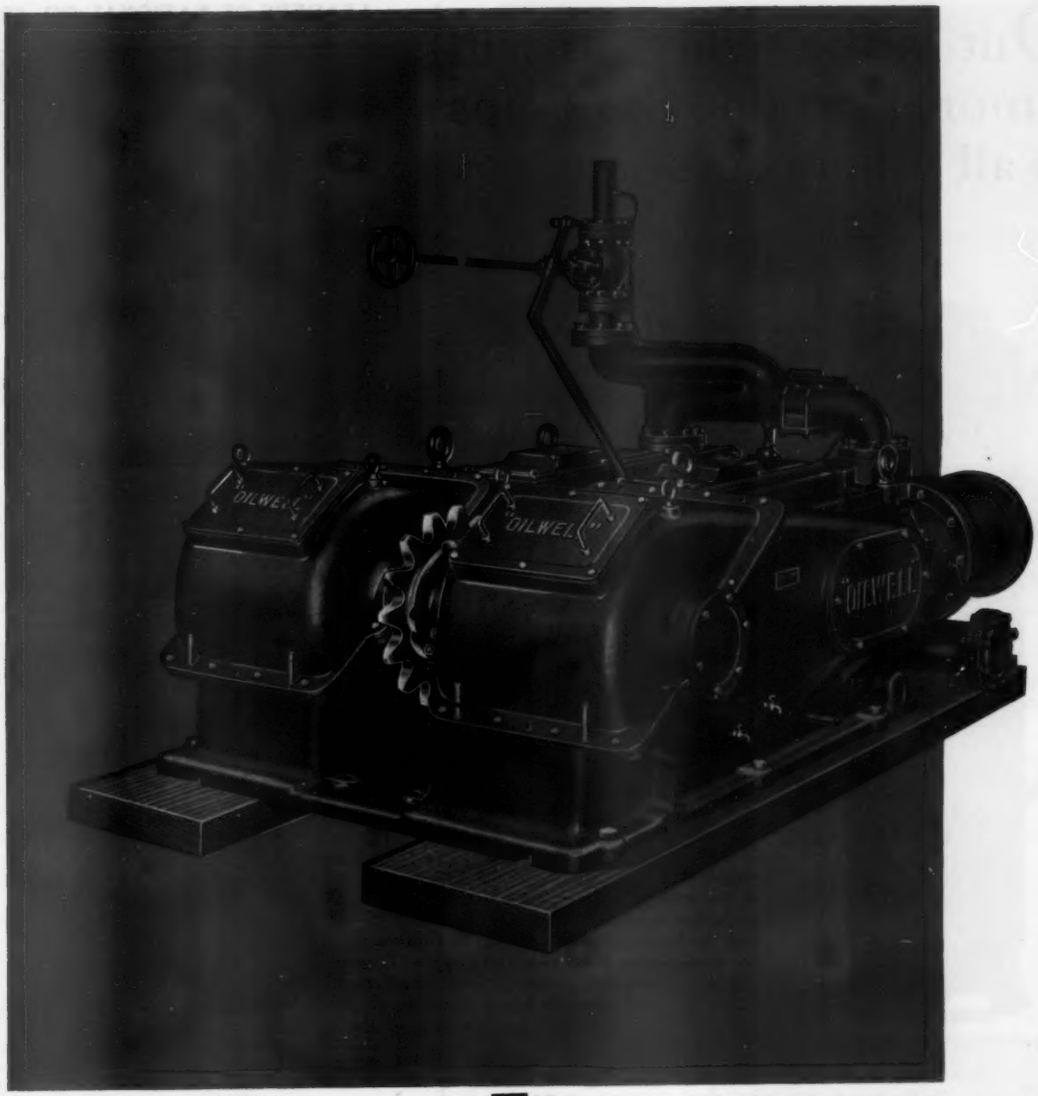

for the most severe drilling "OILWELL" 12"X12" engine

BURGH, U.S.A.

BRANCH STORES
IN ALL OIL FIELDS

Out in the field you will find more Lorraine Gas Traps than all others combined

and here is just one of the reasons why

One prominent oil company writes:

"Replying to your inquiry of June 2nd, regarding the Lorraine Gas and Oil Separator, I am pleased to state that we consider your separator the best on the market today. The automatic control of the fluctuating flow of oil and gas is one of its principal features. As all production men know, a good well may be killed or ruined by improper regulating of the flow."

The LORRAINE Type "M"

shown here, is designed especially to handle fluctuating wells. It takes care of your well automatically whether the well is flowing regularly or heading. Descriptive folder on request.

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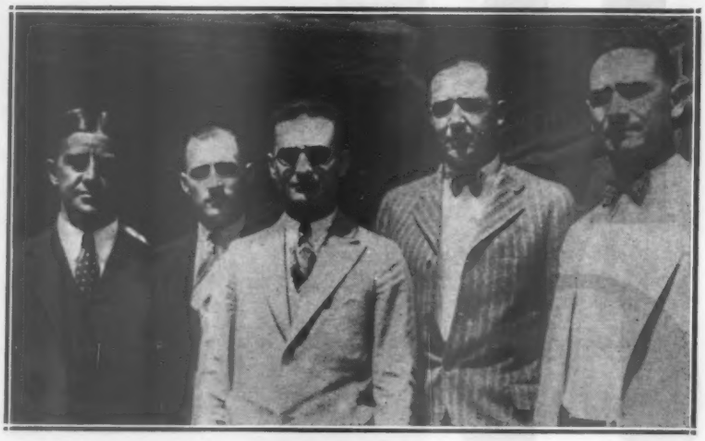
LORRAINE
AUTOMATIC
GAS and OIL SEPARATORS

LEADERS OF NATIONAL OIL SCOUT ASSOCIATION



Officers elected by the National Oil Scouts Association at the sixth annual convention which was held in Fort Worth, Tex., May 20 and 21. Reading from left to right: Ford Turner, president; R. T. Lutz, editor of the Swab; Ed Dilley, secretary-treasurer; Dave Finley, second vice president and William C. Leisk, first vice president.

P. G. Booth, recently elected chairman of executive committee of the National Oil Scouts Association.

Class Input Wells With Commercially Productive Wells

WASHINGTON, D. C., June 1.—Secretary Wilbur of the Department of the Interior has approved a recommendation of the Geological Survey that input wells, those through which air or gas are pumped underground to force the oil out, be classed as commercially productive wells. The memorandum of the Geological Survey throws an interesting light on one of the most spectacular phases of oil production.

"Repressuring oil producing sands by injecting natural gas, air or a mixture of gas and air, into the sand through wells selected or drilled for that purpose, though still in an experimental stage, is generally recognized in the industry as beneficial. The great benefit from repressuring lies in the probability that ultimate production from the sand will be increased and thus an additional portion of the natural oil and gas resources will be conserved for use.

"A question has arisen as to what consideration shall be given to wells through which gas is injected into the sand, customarily called input wells in computation of government royalty. The sliding scale royalties are based on the average production per well. Consequently, the number of wells is a critical factor in royalty computation. The standard form of oil and gas lease provides that 'only wells which have a commercial production during at least part of the month shall be considered in ascertaining the average production . . .; and the Secretary of the Interior shall determine what are commercially productive wells under this provision.'

"In practice, it has been found that commercially productive wells must be selected as input wells by reason of their having direct and effective access to the productive oil horizon. In this way input wells, though literally being used for consumption of gas and having no production of oil or gas, contribute to increased productivity of other wells on the leasehold.

"Repressuring, by increasing productivity, tends towards higher rates of royalty under the sliding scale royalty payments to the Government.

"If input wells are excluded from any count of the number of wells, as a basis for royalty computation, this trend is still further augmented, and, I believe, an unfair penalty placed on an operating practice that is in the interests of conservation.

"Repressuring with natural gas or air is in line with modern developments in methods of oil recovery and subject to supervision in detail by the supervisor of oil and gas operations, Geological Survey, should receive such encouragement as can reasonably be afforded by departmental approval.

"I therefore recommend that you determine that input wells in repressuring operations are commercially productive wells within the meaning of the standard lease form."

ANOTHER LARGE PURCHASE

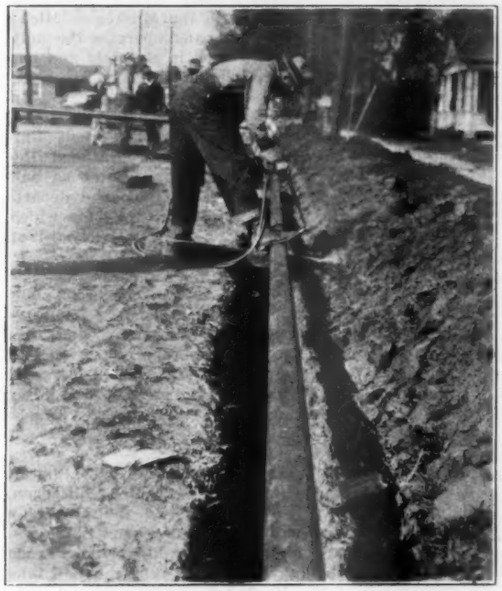
OLEAN, N. Y., June 1.—The Penn Petroleum Co. made another large purchase of oil properties in the Allegany Field when it acquired in fee 772 acres located in the town of West Union, Steuben County, between Whitesville and Rexville.

This property is roughly circular and approximately 1¼ miles in diameter, faces on a concrete highway now under construction and is on the New York & Pennsylvania Railroad. At present the property has 115 wells, 12 powers, 6 steel and 3 wood tanks, one 120 horsepower twin cylinder Miller engine. This purchase includes 464 acres of the Andover Oil Co., 110 acres of the Rex Oil Co., 69½ acres of the Clover Leaf Oil Co., 104 acres known as the John McKinley property, and 25 acres known as the Roy Carter property.

C. W. HARDY DIES

Charles W. Hardy, one of the first operators in the Spindletop, Tex., Field and a pioneer in the development of the Caddo, La., Field, and later north Louisiana districts, died at his home in Shreveport, La., Aged 69.

Let's Prove These Claims



According to the most positive "authorities," just about everything sold for pipe line protection is 100%. However, there is some exaggeration which fortunately is easy to discover—for no matter how powerful the preliminary arguments and opinions, the story is told when the lines see daylight again.

The experience of this Company with pipe line protection has given us a line on rust prevention which makes possible interesting and convincing deductions. These are yours for the asking.

NO-OX-ID and a suitable type of NO-OX-ID-IZED wrapper are being used by a constantly increasing number of men to protect costly pipe line properties and their own hard won reputations.

These products, with their chemical and physical protection, are also being used on reconditioning work where, as in the upper right hand picture, the line is still worth saving.

The three other pictures are most significant. They show the use of NO-OX-ID and NO-OX-ID-IZED wrapper in circumstances where any reconditioning would be unusually expensive.

Would you like to examine our data built up from scientific research and many years actual field work? If you would like to conduct tests of your own, we will tell you how to make a "high speed" corrosive soil where months are equal to years in ordinary soils. Stop listening to claims. The proofs are yours for the asking.

Dearborn Chemical Company

"A House of Chemical Engineers" In Its Forty-first Year of Service to Industry

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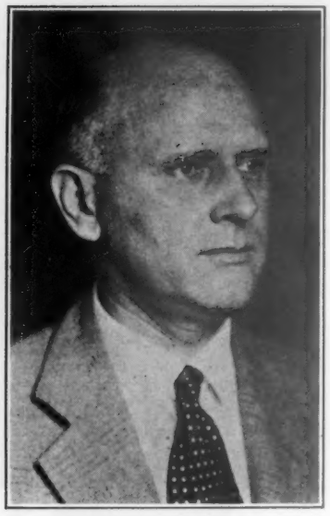
NO-OX-ID
IRON-OX-RUST
TRADE MARK
The Original Rust Preventive

MEN KNOWN IN OILDOM



Myron E. Wagner

Myron E. Wagner, general superintendent and director of the Mid-Kansas Oil & Gas Company, was born and reared in Wood County, Ohio, when that part of the State was a big forest. Myron worked at odd jobs in a stave mill near his home until oil was found in that district, after which he passed his vacations in the field, later becoming a roustabout, pumper and warehouseman.

After a few years in the service of the Ohio Oil Company he was sent to the oil fields of Illinois, where he soon was promoted to farm foreman, later becoming district superintendent, with headquarters in Bridgeport. For 13 years he continued as district superintendent. Then, in 1913, he took charge of the Ranger, Tex., property of the Mid-Kansas Oil & Gas Company, an Ohio Oil Company subsidiary. He was made general superintendent and director at this time.

The Mid-Kansas, in 1925, bought out the Waite Phillips property north of Tulsa, and Mr. Wagner, moving to this city, assumed charge of the company's operations in both Oklahoma and Kansas. Since then the operations have been carried into other fields of Oklahoma and into Texas. The Mid-Kansas is the principal holding and operating company in the Yates Field of Pecos County, Texas, where Mr. Wagner supervised the opening of the discovery well.

Mr. Wagner married Miss Mary Elizabeth Whitmill, of Bowling Green, Ohio. They have two sons. The older one, Clyde L. Wagner, is a geologist for the Ramsey Oil Company. The younger one is in high school.

PERSONAL PARAGRAPHS

D. A. Sutherland has returned to London from a visit to the Near East.

* * *

Mr. and Mrs. Peter Stauft and baby, of Negritos, Peru, are visiting in Petrolia, Ontario.

* * *

T. G. Madgwick, federal petroleum engineer of Canada, will spend the summer at Calgary, Alberta.

* * *

Bert L. Ryan, head of the land department of the central division for the Shell Petroleum Corporation, with offices at Dallas, Tex., made a field trip to West Texas during the week.

* * *

Glen M. Ruby, in charge of the Hudson's Bay-Marland Oil Company operations since its inception, has severed his connection with that company to become president and managing director of the Nordon Corporation.

Carl K. Dresser, oil producer, of Tulsa and Bradford, and Mrs. Dresser, are visiting Colorado points.

* * *

L. B. Boggs, of Ardmore, Okla., is in Calgary, Alberta, arranging for drilling contracts in the Canadian fields.

* * *

Major Sir Richard W. Barnett, M. P., president of British Controlled Oilfields, Ltd., underwent a slight operation recently.

* * *

Louis Stevenson, of Petrolia, Ontario, has left via England for Persia where he will drill for the Anglo-Persian Oil Company.

* * *

Frank Hopwood of the Royal-Dutch organization in London, is in Venezuela and will stop in New York in July, on his return.

* * *

Guy E. Green, geologist with the Vacuum Oil Company at Midland, Tex., is the new secretary of the West Texas geological society.

* * *

Guy Stevens, former director of the Association of Producers of Petroleum in Mexico, has resigned to enter law practice in New York.

* * *

Warner Clark, of the California Company, Dallas, Tex., spent several days in Houston, Tex., calling on oil executives in the latter city.

* * *

W. A. Monterief, independent oil producer of Fort Worth, Tex., was among the out-of-town visitors at offices of Houston oil companies recently.

* * *

Edward Prizer, chairman of the board of directors of the Vacuum Oil Company, and his daughter, have recently concluded a visit to Cairo, Egypt.

* * *

C. C. Ross, supervisory engineer of the Canadian Department of the Interior at Ottawa, recently visited Calgary in connection with oil development.

* * *

Roy L. Cronice, Pittsburgh, Pa., of the Southwest Pennsylvania Pipe Line Company, and Mrs. Cronice, spent several days in Mannington, W. Va., recently.

* * *

Harry Smith, engaged with the International Petroleum Company in Colombia for three years past, is spending three months in Petrolia, Ontario, on furlough.

* * *

C. J. Sipple, of Landon, Ky., spent several days in Muskegon, Mich., where he made his headquarters while investigating wildcat acreage in western Michigan.

* * *

Norwood Johnston, Pittsburgh, Pa., prominent oil producer in the Eastern fields, recently visited Owensboro, Ky., where he has large holdings in the Blue Grass State.

* * *

V. S. Swisher, Oil City, Pa., secretary and director, and E. L. Jolly, Washington, Pa., attended the directors' meeting of the Southwest Pennsylvania Pipe Line Company, held at Pittsburgh, Pa.

* * *

T. M. Kennerly, of Houston, Tex., has been elected general counsel for the Houston Oil Company and affiliated companies. He succeeds the late H. O. Head. Mr. Kennerly has been a director of the company.

* * *

C. R. Keilty, land man for the Deep Rock Oil Company, Fort Worth, Tex., made an inspection trip through the San Antonio district, and in Jim Hogg County where the company is drilling a wildcat test.

* * *

R. W. Carroll, pioneer oil operator both of the East and the Gulf Coast, has returned to Galveston, Tex., from California, where he has spent the past year, and will spend the summer at the Texas coast city.

* * *

H. M. Macomber, general superintendent of the Turkish Petroleum Company of Iraq, is making a tour of the United States and Canada with three other representatives of the company. They are looking over and inspecting new and improved drilling equipment for the Iraq Field.

R. C. Fast, formerly of Tampico, export man for the Oil Well Supply Company, has been transferred from Oklahoma City to Calgary, Alberta, to handle the Alberta territory for his company.

* * *

Sir Thomas H. Holland, who is at present in South America at the invitation of the Colombian government, as an adviser on new petroleum legislation, has been appointed principal of Edinburgh University.

* * *

Roy Cunningham has been made Oklahoma divisional manager in charge of marketing by the Phillips Petroleum Company. Mr. Cunningham was formerly with the Waite Phillips Company and the Shell Petroleum Corporation.

* * *

W. W. Stein, vice president and general manager of the South Texas Gas Company, Laredo, Tex., spent several days in Houston, Tex., on business at the offices of the Moody-Seagraves interests, of which his company is a subsidiary.

* * *

Dr. A. Wade Schwitalla, of the Tulsa headquarters of the crude oil purchasing department of the Shell Petroleum Corporation, spent several days in Muskegon, Mich., completing arrangements for the purchase of a large percentage of the output of the field to be shipped to Shell refineries near Chicago.

* * *

Frank O. Prior, vice president of the Dixie Oil Company, of Shreveport, La., visited producing properties of his company in the Muskegon, Mich., Field, where the Dixie company operates the only complete gathering line system in the field and has been the principal purchaser of crude oil since the field was opened.

* * *

Dr. Frank Carney, formerly with Cornell University and more recently with the National Refining Company, is visiting Europe. Later he will begin his duties as head of the geological department of Baylor University, Waco, Tex., for which position he was recently chosen by the board of trustees of the university.

* * *

W. E. Gibson, Pittsburgh, Pa., general sales manager for the South Chester Tube Co., and his sisters, Mrs. E. W. Smiley, Warren, Pa., and Miss Mary Gibson, Oil City, Pa., returned to their homes recently after several days' stay in Tulsa and Blackwell, Okla. They had been called to the latter city by the death there of their brother, A. E. Gibson.

* * *

W. F. Simrall, president of the W. F. Simrall Company, of Cincinnati, Ohio, visited Muskegon, Mich., conferred with officials of the Muskegon Oil Corporation with regard to completion of a pipe line and loading docks to ship Dundee crude to Lemont, Ill. Mr. Simrall has contracted to take the output of the Muskegon corporation and associated companies.

* * *

I. A. O'Shaughnessy, president of the Globe Oil & Refining Company, Blackwell, Okla., and G. G. Woodruff, of St. Louis, Mo., who recently resigned as vice president of the Shell Petroleum Corporation, spent several days in Muskegon, Mich., arranging to purchase Dundee crude from the Michigan Field to run in the former Lemont Refining Company plant at Lemont, Ill., which they recently purchased.

* * *

Walter Elliot, Los Angeles, general superintendent, Shell-Union Oil Corporation; Joseph Holmes, New York City, petroleum engineer for the Pan American Oil Company, and Ben B. Cox, of the same city, geologist for the Near East Development Company, were with H. M. Macomber in Fort Worth, Tex., on the way to California. Mr. Macomber got his start in the oil business in the old Saratoga Field in Southeast Texas.

* * *

G. H. Jacques, general superintendent of the producing department, was made one of the directors of the Midwest Refining Company at the recent meeting of the board. Mr. Jacques is one of the best known producing men in the Rocky Mountain region, and is known throughout the industry for his improvements on drilling methods and drilling equipment and for his participation in standardization work of the American Petroleum Institute.

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TIMKEN *Tapered Roller* **BEARINGS**

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

(Continued from Page 60)

Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-24-1w ..... Drlg. 560 ft.

HARVEY COUNTY

Deering-Marshall's No. 1 Dick, Sec. 4-25-2w ..... Fishing 2,345 ft.
McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w ..... Shut down 300 ft.
Roth & Parrent's No. 1 Brombrowsky, NW cor. Sec 26-22-1e ..... Fishing 2,355 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ..... Drlg. 2,720 ft.
Slick & Cornell's No. 1 Gatz, NW cor. SE Sec. 36-22-1e.. Drlg. 2,785 ft.
Hartman & Skaer's No. 1 Seaman, NW cor. NE SE Sec. 26-24-1e ..... Drlg. 3,520 ft.
Fisher & Louch et al's No. 1 Reiger, NW cor. NE Sec. 17-23-2 ..... Abandoned 3,343 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w... Shut down 3,444 ft.
Patton et al's No. 1 Dunning, SE cor. SW NE Sec. 26-24-1. Drlg. 2,810 ft.
Rosenthal et al's No. 1 Ingalls, C NW SW Sec. 24-23-2w. Drlg. 1,995 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 22-23-1w.. . Drlg. 2,740 ft.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

KINGMAN COUNTY

Gypsy Oil Co.'s No. 1 Kincaid, NE cor. NW, Sec. 18-29-5w ..... Drlg. 2,360 ft.

LANE COUNTY

Robinson's No. 1 Dickerson, Sec. 11-18-27w..... Shut down 2,650 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Skelly Oil Co.'s No. 1 Mehl, NW NE Sec. 11-20-4e ..... Rig on ground.
Irwin et al's No. 1 Cooper, NE NW Sec. 10-3-7e..... Drlg. 1,750 ft.
Empire O. & R. Co.'s No. 1 Scally, SW NE NE Sec. 28-19-2e ..... Drlg. 2,320 ft.

MARION COUNTY

Hobworth et al's No. 1 Skiles, SE NW NW Sec. 30-21-3e. Drlg. 1,200 ft.
Hartman & Skaer and White Eagle's No. 1 Kline, NE NW Sec. 28-18-3e ..... Underreaming 2,746 ft.; 6-in. csg.
Connell & Prairie's No. 1 Zirak, SE cor. SW Sec. 3-18-3e ..... Shut down 2,500 ft.
General Utilities Co.'s No. 1 Burkholder, Sec. 18-19-3e... Fishing 2,760 ft.
General Utilities Co.'s No. 1 Propp, NE cor. SE SW Sec. 3-19-4e ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Drlg. 2,860 ft.
Frank L. Moore's No. 1 Miller, NE cor. NE Sec. 26-19-1.. Underreaming 6-in. csg. 2,780 ft.

McPHERSON COUNTY

Slick, Pryor & Lockhart's No. 1 Gratton, C NE NW NW, Sec. 34-20-3w ..... Rig.
Helmerich & Payne's No. 1 Klassen, SE NE NE Sec. 14-21-1w ..... Rig.
McPherson Oil & Gas Co.'s No. 1 Decker, C SE Sec. 11-19-2w ..... Underreaming 8-in. csg. 2,230 ft.
Helmerich & Payne's No. 1 Rosen, NE cor. SE SW Sec. 25-21-2w ..... Drlg. up U.R. lugs 2,212 ft.
McPherson Gas Co.'s No. 1 Chinberg, NW cor. Sec. 18-19-2w ..... Drlg. 300 ft.
McPherson O. & G. Co.'s No. 1 Rasmusson, SW cor. Sec. 8-18-3w ..... Shut down 805 ft.
Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Fishing 3,301-04 ft.; show of o'l.
McPherson Gas Co.'s No. 1 Reitz, NW cor. SE SW Sec. 1-20-2w ..... Drlg. 2,244 ft.
J. H. Tatlock's No. 1 Hayer, C SW NE Sec. 32-20-1w.... Drlg. 2,230 ft.

MORRIS COUNTY

Hiatt et al's No. 1 Blythe, NW NE Sec. 35-15-5e..... Drlg. 1,970 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w.... Drlg. 4,177-82 ft.; show gas and oil and water.

OSBORNE COUNTY

Mid-Kansas' No. 1 Boyce, SE cor. NW Sec. 18-6-13w.... Drlg. 300 ft.
Empire O. & R. Co.'s No. 1 Crest, SE NE Sec. 30-9-14w. Drlg. 3,680 ft.
Trees Oil Co.'s No. 1 Payenter, NE cor. SE SE Sec. 22-6-15 ..... Drlg. 950 ft.
S. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w... Fishing 3,380 ft.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w. Shut down 3,655 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonian-British American's No. 1 Wellman, C SW SW Sec. 34-2-19w ..... Drlg. 2,150 ft.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w. Drlg. 1,950 ft.
Empire O. & R. Co.'s No. 1 Henderson, SW cor. Sec. 35-25-4w ..... Drlg. 2,685 ft.

RENO COUNTY

Perry et al's No. 1 Oswald, NE cor. NE SE Sec. 30-22-5w ..... Drlg. 3,240 ft.
Milmar Oil Co.'s No. 1 Strickley, SW cor. SW Sec. 17-26-5w ..... Fishing 2,550 ft.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec 21-20-10w ..... Drlg. 2,308 ft.

RILEY COUNTY

Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e... Rig.

RUSSELL COUNTY

Allison & Fitzwilliams' No. 1 Mohenny, NW SE Sec. 5-14-12w ..... Drlg. 2,240 ft.
Phillips Pet. Co.'s No. 1 Salback, SE NW Sec. 32-12-14w ..... Drlg. 2,850 ft.
T. B. Slick's No. 1 Sellans, SW cor. NE Sec. 36-15-12w .. Shut down 2,875 ft.

ROOKS COUNTY

Kruger et al's No. 1 Stein, NW SE SW Sec. 12-3-16w... Shut down 50 ft.
Burford-Brim's No. 1 Toxa, Sec. 22-9-17w..... Spudded; shut down.
Prairie O. & G. Co.'s No. 1 Gick, SE cor. Sec. 22-9-19w.. Drlg. 3,415 ft.
Prairie O. & G. Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Drlg. 3,725 ft.

RUSH COUNTY

Sinclair Oil & Gas Co.'s No. 1 Seur, C SW NW NW Sec. 8-18-17w ..... Drlg. 1,265 ft.
Danciger Oil Ref. Co.'s No. 1 Swindt, SW cor. Sec. 22-17-17w ..... Drlg. 2,490 ft.
Barnsdall Oil Co.'s No. 1 Brock, C SE SE Sec. 21-17-17w ..... Fishing 2,460 ft.
Central Commercial Oil Co.'s No. 1 Brock, SE cor. SW SW Sec. 13-17-16w ..... Shut down 50 ft.
Danciger Oil Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Drlg. 2,965 ft.
Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW Sec. 27-17-17w ..... Drlg. 3,573-97 ft.; dry drlg. 3,603 ft.
Wilcox O. & G. Co.'s No. 1 Woodward, NE cor. NE Sec. 35-27-17w ..... Drlg. 3,122 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Muir, C SW SE Sec. 6-15-2w..... Drlg. 2,135 ft.
Kinney-Coastal Co.'s No. 1 Hughes, NE cor. Sec. 20-13-4w. Shut down 50 ft.
M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w..... Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w... Drlg. 2,510 ft.
Kenney Coastal Oil Co.'s No. 1 Beal, C NW Sec. 23-14-5w ..... Underreaming 8-in. csg. 3,128 ft.

(Continued on Next Page)

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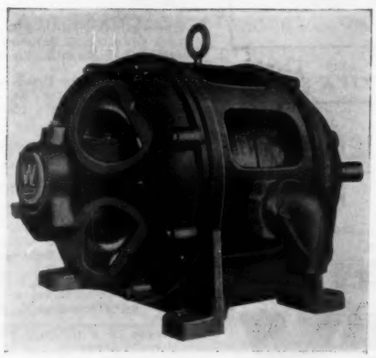

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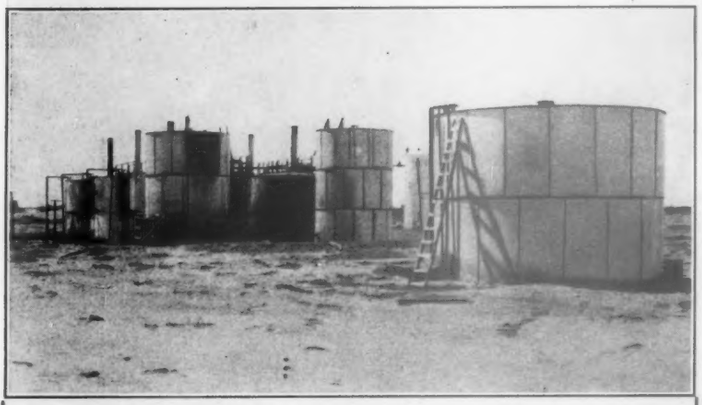

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SEDGWICK COUNTY

Johnson & Marshall's No. 1 Roy, NE cor. SE SW Sec. 23-29-1w ..... Rig.
Lario O. & G. Co.'s No. 1 Teachorff, NE cor. SW Sec. 27-29-1w ..... Rig.
Kyle et al's No. 1 Pinney, SW NW SE Sec. 29-28-1w ..... Rig.
Simmons & Canary's No. 1 Scott, NE NW NE Sec. 22-26-1e ..... Drlg. 100 ft.
T. B. Slick's No. 1 Rosenhagen, SW SE NE Sec. 33-27-4w ..... Drlg. 3,310 ft.
Hammond & Stout's No. 1 Roeder, SW NW Sec. 23-27-2w ..... Drlg. 1,040 ft.
Twist et al's No. 1 Armstrong, NE NW Sec. 28-26-1e ..... Rig; spud; shut down.
Shawver et al's No. 1 Scott, SE cor. SW SW Sec 10-28-1e ..... Drlg. 1,900 ft.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e ..... Drlg. 1,800 ft.
Kyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w ..... Abandoned 4,093 ft.
R. Magiason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... Shut down 350 ft.
Magnolia Pet. Co.'s No. 1 Wise, NW cor. NW Sec. 36-28-2w ..... Underreaming 6-in. csg. 3,410 ft
Blankenship et al's No. 1 Tuttle, SW cor. NW Sec. 1-27-1 ..... Drlg. 3,225 ft.
Twist et al's No. 1 Joseph, CNL SW SE Sec. 4-25-1w ..... Shut down 1,980 ft.
Miller Wentz' No. 1 Shaffer, NE cor. NE Sec. 9-27-2w ..... Drlg. 2,235 ft.
Kroder et al's No. 1 Harden, SW cor. NW SW Sec. 20-26-1e ..... Shut down 1,100 ft.
Morgan et al's No. 1 Corn, SW cor. NE Sec. 28-26-1w ..... Drlg. 3,585 ft.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w ..... Shut down 350 ft.
Sullivan et al's No. 1 Sheily, NW cor. NE SE Sec. 32-29-2e ..... Shut down 2,990 ft.
Hartman & Skaer et al's No. 1 Hutchinson, SE cor. SE SW Sec. 23-28-3w ..... Cleaning out 3,735 ft.
Producers Oil Co.'s No. 1 Jones, SW cor. NE SE Sec. 31-26-2 ..... Drlg. 2,998-3,003 ft.; sand and water.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e. Drlg. 1,200 ft.
Frank Wahn's No. 1 Wilson, C NE NW SE Sec. 9-26-1w. Rig and tools.
Connell & Slick's No. 1 Mohannah, C NE SE SE Sec. 3-25-1w ..... Drlg. 3,111 ft.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w. Shut down 500 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16 34-38w ..... Shut down 1,320 ft.

SMITH COUNTY

Phillips Pet.'s No. 1 Clydesdale, SE NW Sec. 23-5-14w .. Location.
Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Shut down 3,759-63 ft.; sand and water.

SUMNER COUNTY

Gypsy & Blankenship's No. 1 Robeck, C SW SW Sec. 27-34-4w ..... Drlg. 2,435 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Day et al's No. 1 Unknown, NE NW SW Sec. 2-11-21w ... Rig on ground.
Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Hole full oil 3,960-72 ft.; 284 bbls. in 24 hrs.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3 Drlg. 560 ft.

WALLACE COUNTY

Morton & Entyre's No. 1 Parker, SE cor. NW SW Sec. 20-13-41w ..... Rig.

WILDCAT OPERATIONS IN NEBRASKA

(Descriptions are East unless otherwise marked)

CHASE COUNTY

Northwestern's No. 1 Ingold, C NE Sec. 24-6n-38w ..... Shut down 3,612 ft.

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkie (twin well), C NW SW NE Sec. 2-3n-13w ..... Rig.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w ..... Shut down 1,480 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

(Continued from Page 59)

GREER COUNTY

I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w ..... Drlg. 1,803 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w ... Rig.

HARMON COUNTY

I. T. I. O. Co.'s No. 1 fee, C SW SE Sec. 17-5-24w ..... Rig.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w ..... Water 4,080-4,106 ft.; abandoned.

HASKELL COUNTY

Holden's No. 1 Phillip, SE cor. Sec. 5-9-18e ..... Rig.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e ... Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e .. Shut down 2,100 ft.

HUGHES COUNTY

Whitney et al's No. 1 Moore, SE SW Sec. 17-5-9 ..... Shut down 3,910 ft.
McGee Co.'s No. 1 fee, SE cor. Sec. 25-8-11e ..... Drlg. 1,150 ft.
The Texas Company's No. 1 Bryan, SE NE SW Sec. 9-6-8e ..... Drlg. 2,650 ft.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

KINGFISHER COUNTY

McKenna & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w ..... Shut down 4,895 ft.

KIOWA COUNTY

Ryner's No. 1 Widell, SW NE NE Sec. 5-6-15w ..... Drlg. 390 ft.
S. H. Christian's No. 1 Stone, SE cor. Sec. 18-7-18w .... Rig on ground.
C. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w ... Plugging back to 918 ft.; shot 908-18 ft.; shut down.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w. Shut down 1,035 ft.
McWharter and others' No. 1 Sherwood, CWL NW NE Sec. 2-5-17w ..... Drlg. 650 ft.

LATTIMER COUNTY

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e ..... Rig on ground.
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 ..... Shut down 3,570 ft.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6 ..... Drlg. 1,505 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guler, SE cor. SW Sec. 33-18-3w .. Cleaning out 5-in. csg. 3,970 ft.

(Continued on Next Page)

PROTECT Your Motors and Engines

Increase the Life of Your Compressors

In this field, *complete protection* pays such great dividends . . . and costs so little . . . that most successful operators are safeguarding motors, engines, compressors and pipe lines . . . by installing *United Air Cleaners.* Thousands upon thousands are today giving useful carefree service, maximum efficiency. You have absolutely nothing to worry about when a *United* is installed . . . there are no pads to clean — no screens to clog—no water or oil to change . . . it is *entirely automatic!* Complete protection is truly yours with the *United Air Cleaner* . . . it actually saves you money, time, and efficiency . . . because it forever ends the many evils which dirt-laden air brings to fine machinery! Let us send you a sample for testing . . . there is a *United* cleaner of exact size for your every need . . .

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NOTE: The United Air Cleaner is the choice of many of the most successful oil companies in this country and abroad. List of owners in your territory—where you may actually inspect the UNITED in practical operation—gladly furnished.

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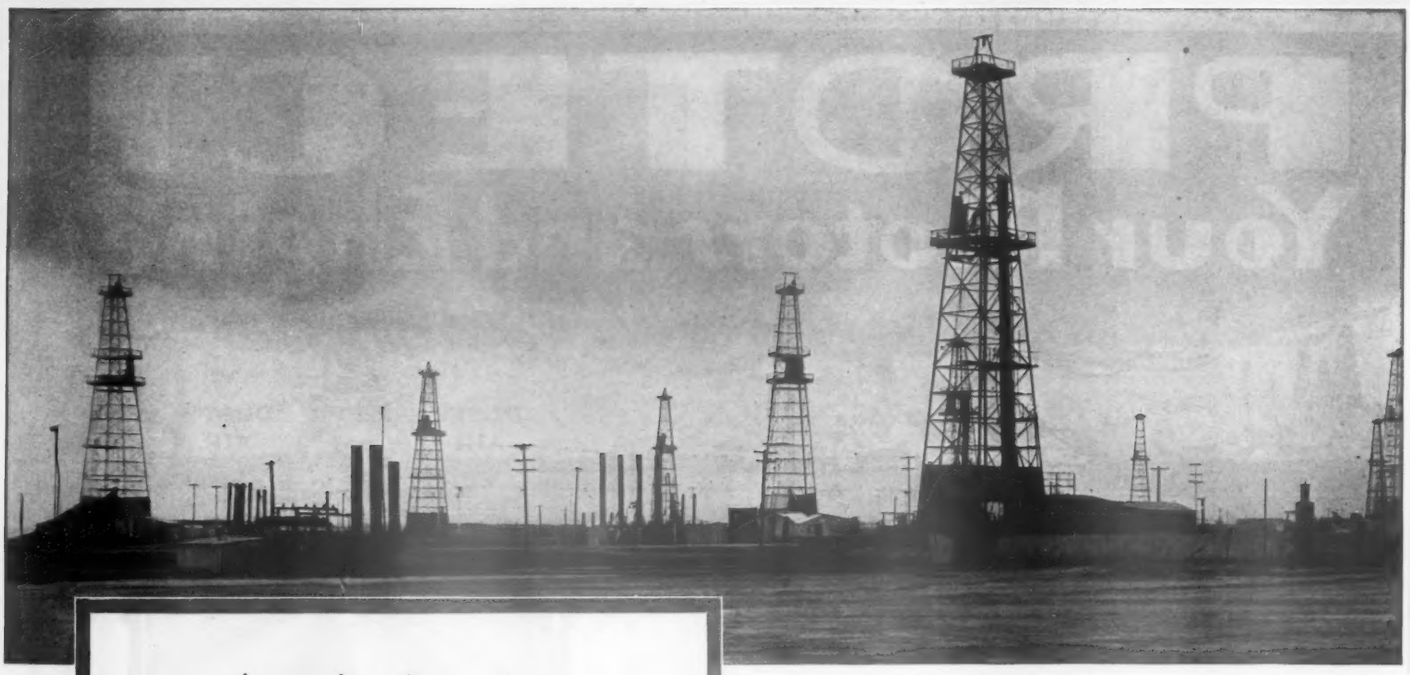
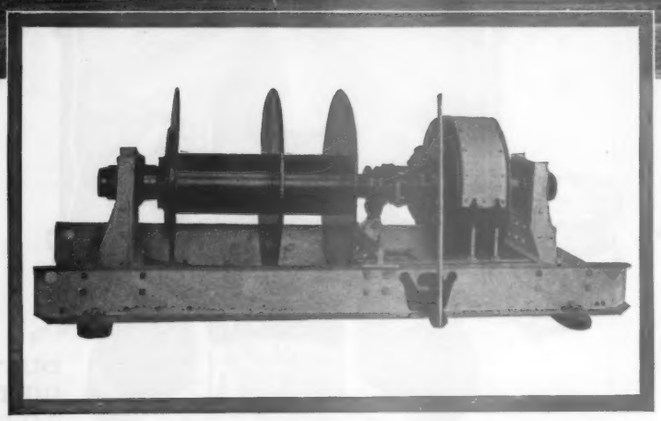


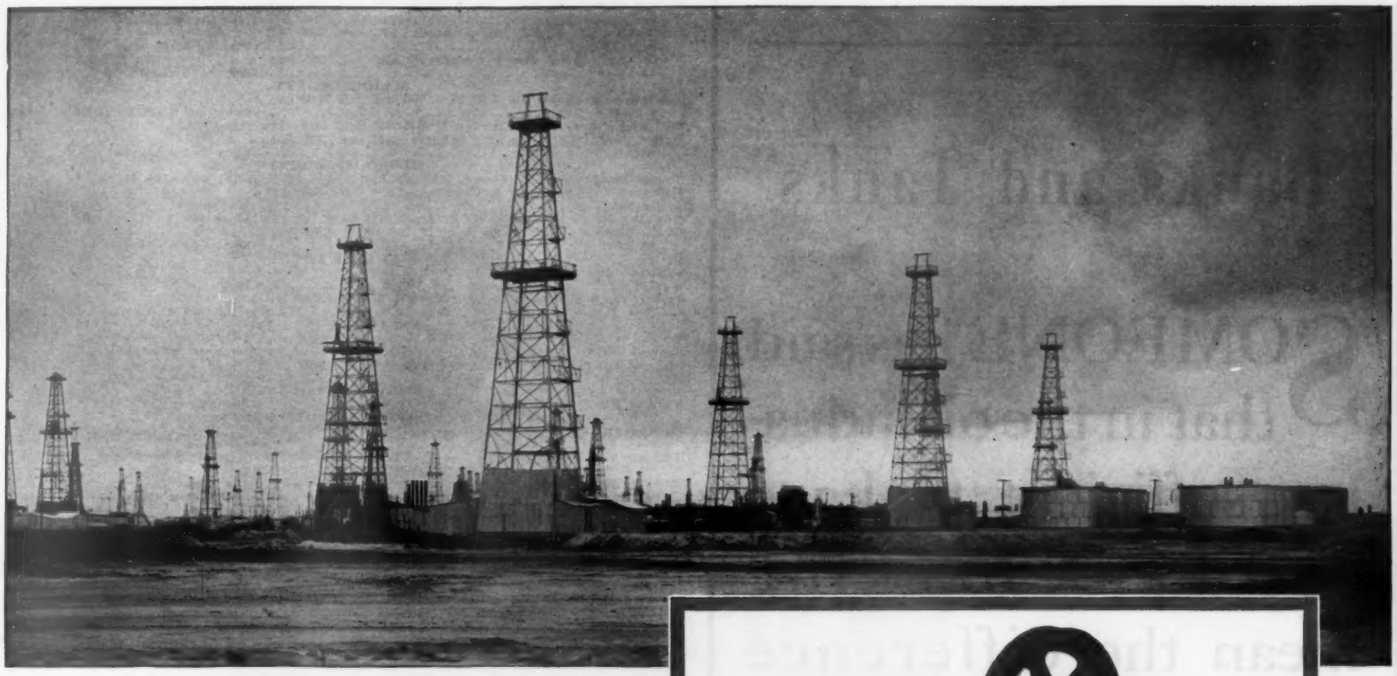


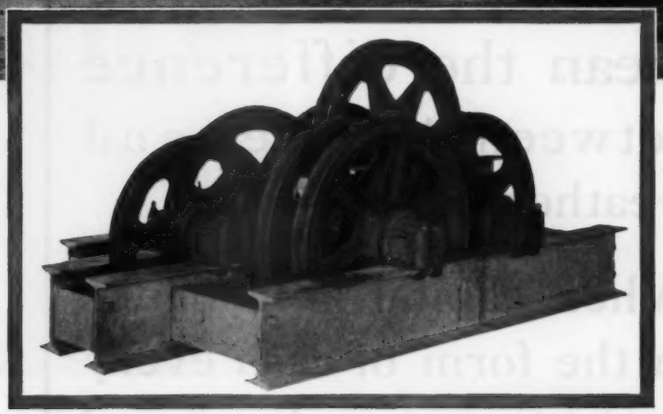
Speed Strength Stamina

FASTER drilling is the constant demand in the oil industry. IDECO derricks and all steel rigs have played a conspicuous part in this development. Speed—quicker erection, ready portability, heavier equipment and faster drilling brings with it increasing demands for strength and stamina. IDECO derricks and rigs have kept abreast of these demands. Although copied up to the point where our patent protection forbids further progress, IDECO Derricks have never been successfully imitated.

International Oil Well Equipment is bought with the assurance that if it is an IDECO product it is built of the best materials, is the last word in engineering and fine workmanship and that there is no interpretation of the word service that will not be carried out to the letter.

INTERNATIONAL STEEL IDECO PRODUCTS (GALVANIZED)





For Faster Drilling

BUILT for high speed work, the IDECO Type C Crown Block with its large size Idecalloy Manganese Steel Sheaves—Timken Roller Bearings—compact grouping on the water table, materially increases the life of the lines and operates at highest speeds under the heaviest loads with a decided power saving.

The new IDECO Chain Driven Sand Reel will lower a six inch bailer into the hole at maximum speed and lift the bailer as rapidly as the speed of the engine will permit. Fool proof, easily adjusted, it can be mounted on any steel or wooden rig, and is designed for use on the machinery end or derrick floor, being portable it can be shifted at will from one well to another.

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"Banks and Tanks"

SOMEONE has said that in the oil industry sufficient tankage and bank backing mean the difference between disaster and weathering the storm.

When capital is in banks in the form of cash every protection is used to guard it against loss.

Why not use similar care to guard capital when stored in tanks in the form of oil by having all your tanks adequately protected against fire and evaporation loss—in other words, *Oceco Equipped?*

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Engineering and Sales Service:

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McINTOSH COUNTY

Spring Valley Oil Co.'s No. 1 Carr, SE cor. NE NW Sec. 16-10-13e ..... Shut down 250 ft.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Fishing 5,508 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-13 ..... Rig on ground.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235-40 ft.; shut down.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w. Rig.
Wilson and others' No. 1 Unknown, NE cor. NE Sec. 4-23-16w ..... Shut down 510 ft.

MUSKOGEE COUNTY

Cooper-Badget's No. 1 Young, NW NE NE Sec. 7-12-20e. Shut down 50 ft.
Tulkogee Oil Co.'s No. 1 Thompson, NW NE Sec. 31-15-20e ..... Machine.
Slusher's No. 1 Barnes, NE cor. Sec. 22-13-19e..... Machine.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.

OKFUSKEE COUNTY

Superior and others' No. 1 Carolina, SE cor. Sec. 6-11-7e ..... Location.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Drlg. 3,974 ft.

OKLAHOMA COUNTY

Mid-Kansas' No. 1 Trosper, NE NW Sec. 19-12-1w..... Drlg. 3,707 ft.
Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w.. Shut down 5,130 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w ..... Shut down 4,750 ft.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12..... Shut down 1,800 ft.

POTTAWATOMIE COUNTY

Cal-Cul Oil Co.'s No. 1 McKnight, NW cor. NE NW Sec. 9-8-3 ..... Location.
Helmerich & Payne's No. 1 Henck, NW cor. Sec. 23-6-4.. Rig on ground.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 William, C SW Sec. 23-12-24w..... Location.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w.... Shut down 725 ft.

SEMINOLE COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Factor, SW NE SE Sec. 3-5-7e ..... Drlg. 3,288 ft.
Continental Oil Co.'s No. 1 Proctor, SE cor. NE NE Sec. 5-8-8e ..... Drlg. 3,360 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Hole full water 4,263-4,313 ft.; fishing.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 ..... Drlg. 3,800 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7.. Rigging up standard tools 4,600 ft.
Prairie O. & G. Co. and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... Drlg. 4,830 ft.

SEQUOYAH COUNTY

Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 1,105 ft.
Buffington and others' No. 1 Meicher, C SW NW Sec. 31-12-24 ..... Shut down 3,000 ft.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Drlg. 5,195 ft.
Sinclair Oil & Gas Co.'s No. 1 Showalter, C SW SW Sec. 33-27-16w ..... Drlg. 2,680 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 22-23-17w ..... Drlg. 1,387 ft.
Prairie Oil & Gas Co. and others' No. 1 James, NE cor. NW Sec. 23-23-17w ..... Drlg. 3,850 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w..... Shut down 3,585 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.
Wilson and others' No. 1 Unknown, NE cor. SW Sec. 4-23-16w ..... Shut down 510 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Wapanucka Oil Co.'s No. 1 Banks, CWL SE SE Sec. 28-2s-9 ..... Shut down 1,530 ft.

BRYAN COUNTY

Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Shut down 1,390 ft.

CARTER COUNTY

L. J. Woodruff's No. 1 Zellnear, NE cor. NW SE Sec. 34-4s-1 ..... Drlg. 260 ft.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 22-4s-2 ..... Shut down 420 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-9 ..... Shut down 1,346 ft.

COTTON COUNTY

Hedrick et al's No. 1 Bull, SW SE Sec. 3-15-10w ..... Rig.
Derden & Pruitt's No. 1 Musgrove, NW SE Sec. 21-2-11w ..... Testing 1,794-1,804 ft.; show.
Birdwell et al's No. 1 Means, SE SW SW Sec. 24-1-11w.. Shut down 1,626 ft.
Kirbow and others' No. 1 Brown, NE SW Sec. 35-3-12w.. Drlg. 1,325 ft.
Pewlin Pet. Co.'s No. 1 King, SW SE Sec. 22-3-9w..... Drlg. 2,200 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w ..... Drlg. 2,057 ft.

JEFFERSON COUNTY

Danciger et al's No. 1 Dilley, SE NW (O.D.D.) Sec. 11-5-7w ..... Rig.
Wirt Franklin Pet.'s No. 1 Sanders, SE NW Sec. 10-4-8w. Drlg. 682 ft.
Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down 350 ft.
Pierce & Brown's No. 1 School Land, SE NE NW Sec. 16-5-8w ..... Drlg. 700 ft.

JOHNSTON COUNTY

Smith & Knisely's No. 1 Lane, E half Sec. 29-1-7..... Drlg. 2,000 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.

MARSHALL COUNTY

Neif and others' No. 1 Strothers, C SW NE NE..... Abandoned 858 ft.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. Sec. 17-1-2e..... 500,000 ft. gas and show of oil 2,185-2,228 ft.; shut down 2,270 ft.

STEPHENS COUNTY

Leath et al's No. 1 Handley, SE SW Sec. 24-2-9w ..... Location.
Wirt Franklin Pet.'s No. 1 Spain, SW SE NW Sec. 9-2-5w ..... Drlg. 50 ft.
Heydrick Drlg. Co.'s No. 1 Thompson, CWL SE NE Sec. 1-1-8w ..... Abandoned 2,511 ft.
G. W. Haines et al's No. 1 Woolsey, SE cor. SW NE Sec. 4-3S-6w ..... Location.
Ellis Drilling Co.'s No. 1 Yates, SW NE Sec. 4-3-7w.... Drlg. 982 ft.
Smythe and others' No. 1 Shaw, NE cor. NE Sec. 27-2-8w ..... Rig.

TILLMAN COUNTY

Long & Taylor's No. 1 Grooms, SE NW Sec. 10-1-17w... Abandoned 726 ft.
Cochran & Ridgway's No. 1 Barnes, C NW NE..... Cellar.
Burt Lambert and others' No. 1 Zivlig, C NW Sec. 25-1-18w ..... Drlg. 2,842 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.
Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Drlg. 820 ft.

OKLAHOMA PANHANDLE

Magnolia Pet. Co.'s No. 1 School, C SE NE Sec. 22-5-5... Drlg. 3,315 ft.
Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e..... Drlg. 100 ft.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18e... Shut down 3,350 ft.

RUST-PROOFED!

when the paint is pure Red-Lead

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WHERE steel-work must serve unweakened for many years . . . on bridges, ships, tanks, steel structures of every type . . . there you find paint made of pure red-lead used.

Tested by more than a century of universal use, pure red-lead paint has proved its high protective value . . . its remarkable ability to prevent rust . . . its extreme durability even under severe conditions. It is recognized by paint authorities everywhere as the standard protective paint for metal.

Fine, uniform, highly oxidized . . . there is no better red-lead obtainable than Dutch Boy red-lead. It comes in two forms . . . paste and liquid. The liquid (ready for the brush) is supplied in six colors—natural orange-red, light and dark brown, light and dark green, and black. The paste comes in natural orange-red and can be shaded to dark colors.

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The New ImProved

K.P. Straight hole bit

K-P Special Steel Forged Bit Head

New Improved Self-Aligning K-P Reamer A Roughneck Can't Break Them With a Sledge.

Positive proof that the new improved K-P Straight Hole Bit drills more nearly true to the vertical than any other bit comes from a recent test made by a prominent concern in Texas.

The Engineer and General Manager and the Superintendent of Drilling supervised the drilling of two offset wells for their company. Weight indicators were used on both wells and a 6" core was taken ahead on both—formations were identical. The acid bottle test was run at 100 ft. intervals.

The results of the test showed that 170 ft. off the vertical at 4,000 ft. was the best competitive bits could do, while the K-P was only 35 ft. from the vertical.

Commenting on this conclusive demonstration, the General Manager said, "The K-P Straight Hole Bit unquestionably drills much the straightest hole." Names of the company and officials supervising this test will be furnished on request.

Try the new improved Self-Sharpening Cutters and new improved Self-Aligning Reamers in your old K-P head. A "roughneck" can't break them with a sledge. Learn by test of their *speed, safety* and *endurance.*

At your favorite supply store or in California, at the K-P Bit Company, Los Angeles.

KENNEDYE-PLUMB CORPORATION
St. Louis, Mo., U. S. A.

"The Line of Least Resistance"

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 79)

British American Oil Co.'s No. 1 Purviance, 330 ft. each way from NW E 160 ac., Sec. 61, Blk. B-2, H.&G.N.—Drlg. 1,500 ft.

Champlin Ref. Co. and Danciger's No. 1 Cook Faulkner, 330 ft. each way from SW cor. W 120 ac., E 200 ac., Sec. 30, Blk. B-2, H.&G.N.—Drlg. 275 ft.

Champlin Ref. Co.'s No. 1 McLaughlin, 330 ft. S and W of NE cor. Sec. 33, Blk. B-2, H.&G.N. Sur.—T.D. 2,884 ft; T.P. 2,863-78 ft; flowed 372 bbls. with 12,000,000 ft. gas.

Champlin Ref. Co.'s No. 2 Jackson, 330 ft. each way from SE cor., W 100 ac., Sec. 60, Blk. B-2, H.&G.N.—Rigging up.

Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur.—S.D. 2,740 ft.

Cockrell-McElroy et als' No. 1 McConnell, 330 ft. each way from NE cor. W½ SW, Sec. 174, Blk. 3, I.&G.N.R.R. Sur.—Show gas 2,890 and 2,920 ft; T.D. 3,320 ft; to P.B. and shoot; light spray 3,140-45 ft.

Cockrell-McElroy Oil Co.'s No. 2 McConnell, 330 ft. S and E of NW cor. W½ SW, Sec. 174, Blk. 3, I.&G.N.R.R. Sur.—Drlg. 2,430 ft.

Constantine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur.—S.D. 2,965 ft; encountered salt wtr.

Danciger O. & R. Co.'s No. 1 H. K. Beck, 330 ft. S and E NW cor. NW, Sec. 28, Blk. B-2, H.&G.N. Sur.—Show gas 2,190 ft; stdzng. at 2,794 ft.

Danciger O. & R. Co.'s No. 4 Morse, 330 ft. S and E NW cor. NW SW, Sec. 1, Blk. 26, H.&G.N. Sur.—Spudding.

Danciger's No. 2 Shell-Shaw, 330 ft. each way from SE cor. E½ SW, Sec. 5, Blk. 1, A.C.H.&B. Sur.—Drlg. 1,110 ft.

Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur.—Temp. abd.

Delaney and Associates Oil Co.'s No. 8 Jackson, 990 ft. S and 330 ft. E NW cor. E½ SW, Sec. 88, Blk. B-2, H.&G.N.R.R. Sur.—Cellar.

Empire G. & F. Co.'s No. 1 R. M. Brown, C of SE, Sec. 238, Blk. B-2, H.&G.N. Sur.—Run. 10-in. csg. at 1,265 ft.

Sines & Reiger's, formerly Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur.—Fish. pipe 3,206 ft.

Gardner Bros. and Collins' No. 1 Lincoln-Saunder, 330 ft. S and W of NE cor. W½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur.—5,000,000 ft. gas 2,190-2,250 ft, drlg. 2,479 ft.

Gardner Bros. & Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W½ of E½ of J. G. Eustice Sur.—Location temp. abd.

Gulf Prod. Co.'s No. 7-B Bowers, 990 ft. N and 330 ft. W of SE of 160-ac. lease, Sec. 89, Blk. B-2, H.&G.N. Sur.—Drlg. 2,740 ft; estimated 1,500,000 ft. gas.

Gulf Prod. Co.'s No. 1 Jackson, 295 ft. N and 305 ft. E of SW cor. W½, Sec. 62, Blk. B-2, H.&G.N.R.R. Sur.—Show oil 2,635-40 ft; 2,000,000 ft. gas 2,565 ft; drlg. 2,800 ft; 7,000,000 ft. gas.

Harrell's No. 1 McConnell, 330 ft. S and W of NE cor. E½ SE, Sec. 187, Blk. 3, I.&G.N.R.R. Sur.—3,000,000 ft. gas 2,825-30 ft. and 2,860-2,965 ft; drlg. 3,230 ft; swbd. and flowed 75 bbls. in 24 hrs; T.P. 3,190-3,200 ft.

Independent O. & G. Co.'s No. 1 Hottenbeck, 990 ft. each way from NE cor. NE, Sec. 176, Blk. 3, I.&G.N.R.R. Sur.—5,000,000 ft. gas from 2,428-83 ft; S.D. 2,782 ft.

McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25, H.&G.N. Sur.—1,000,000 ft. gas 2,105-10 ft. and estimated 3,000,000 ft. gas 2,202-08 ft; drlg. 2,620 ft; show oil 2,565-90 ft.

Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G.N.R.R. Sur.—S.D. 1,650 ft. for csg.

Marland Prod. Co.'s No. 3 Finley-Brown, 1,224 ft. from E line, 330 ft. from N line, Sec. 32, Blk. B-2, H.&G.N. Sur.—Rigging up.

Operators Oil Co.'s No. 2 Cook-Faulkner, 903 ft. from S line and 330 ft. from W line of W 90 ac., Sec. 30, Blk. B-2, H.&G.N. Sur.—Drlg. 1,440 ft.

Oil Operators Oil Co.'s No. 3 Cook-Faulkner, 330 ft. ea. way from SE cor. W 90 ac., Sec. 30, Blk. B-2, H.&G.N. Sur.—Drlg. 450 ft.

Operators Oil Co.'s No. 7 Jackson, 330 ft. S and 270 ft. W NE cor. N½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur.—Show gas 2,256 ft; estimated 2,000,000 ft. gas; drlg. 2,873 ft; 12,000,000 ft. gas from 2,810-55 ft.

Phillips Pet. Co.'s No. 1 Jackson, 330 ft. each way from NE cor. NE, Sec. 58, Blk. B-2, H.&G.N.R.R. Sur.—Drlg. 1,400 ft.

Phillips Pet. Co.'s No. 5 Jackson, 330 ft. S and 990 ft. E NW cor. S½ NE, Sec. 88, Blk. B-2, H.&G.N. Sur.—Spudding.

Phillips Pet. Co.'s No. 2 Palmer, 903 ft. from S line and 330 ft. from E line of E 83.4 ac., Sec. 31, Blk. B-2, H.&G.N. Sur.—Drlg. 1,380 ft.

Phillips Pet. Co.'s No. 3 Palmer, 330 ft. each way from SW cor. E 83.1 ac., Sec. 31, Blk. B-2, H.&G.N. Sur.—Drlg. 380 ft.

Panhandle Ref. Co.'s No. 1 Saunders, 330 ft. S and E NW cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur.—15,000,000 ft. gas 2,150-2,320 ft; drlg. 2,608 ft.

Panhandle Ref. Co.'s No. 2 Saunders, 330 ft. S and W NE cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur.—8-in. csg. set at 2,430 ft.

Scott Drlg. Co. et als' No. 1 Chapman, 330 ft. N and E SW cor. S½ NE, Sec. 69, Blk. 25, H.&G.N. Sur.—Drlg. 1,450 ft.

Ray Massie's No. 4 Chapman, 330 ft. each way from NW SE SW, Sec. 51, Blk. 25, I.&G.N. Sur.—Drlg. 400 ft.

Shamrock Co.'s No. 3 Clayton, 150 ft. from W and 330 ft. from N line, E 277.4 ac., Sec. 50, Blk. 25, H.&G.N.R.R. Sur.—Drlg. 489 ft.

Shamrock Co.'s No. 1 Clayton-B, 730 ft. from N and 150 ft. from W line E½ of E 277.4 ac., Sec. 50, Blk. 25—Drlg. 480 ft.

Shell Pet. Corp.'s No. 3 McConnell, 330 ft. N and W SE cor. Sec. 174, Blk. 3, I.&G.N.R.R. Sur.—Cellar.

St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur.—Cellar.

St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R.—S.D. 3,490 ft. with H.F.W.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur.—Spudded and S.D.

The Texas Co.'s No. 6 Bowers, 270 ft. W and 330 ft. N SE cor. E½, Sec. 89, Blk. B-2, H.&G.N.R.R. Sur.—Drlg. 2,782 ft; show oil 2,780 ft.

The Texas Co.'s No. 7 Bowers, 330 ft. E and 990 ft. N SW cor. E½, Sec. 89, Blk. B-2, H.&G.N. Sur.—Drlg. 2,855 ft; 1,000,000 ft. gas at 2,810 ft.

The Texas Co.'s No. 2 B. Bull, 990 ft. S and E NW, Sec. 2, Blk. B-2, H.&G.N.R.R. Sur.—Set 8-in. at 1,835 ft.

The Texas Co.'s No. 2 Chapman-B, 990 ft. N and E SW cor. Sec. 50, Blk. A-9, H.&G.N.R.R. Sur.—Drlg. 2,525 ft.

The Texas Co.'s No. 6 Chapman-A, 330 ft. N and 765 ft. E SW cor. SE, Sec. 51, Blk. 25, H.&G.N. Sur.—Drlg. 2,817 ft; show oil 2,812-17 ft.

The Texas Corp.'s No. 4 Cook-Faulkner, 1,973 ft. from W line and 330 ft. from N line of W 160 ac., Sec. 29, Blk. B-2, H.&G.N. Sur.—Bldg. rig.

The Texas Corp.'s No. 3 Cook-Faulkner, 1,312 ft. from W line and 350 ft. from N line of W 160 ac., Sec. 29, Blk. B-2, H.&G.N.R.R. Sur.—Bldg. rig.

The Texas Co.'s No. 5 McLarty-A, 330 ft. S and E of NW cor. Sec. 2, Blk. 1, A.C.H.&B. Sur.—Show gas 2,235 ft; drlg. 2,535 ft.

The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur.—Rig.

The Texas Co.'s No. 2 Shaw, 1,000 ft. from S and 330 ft. frcm W line E½, Sec. 5, Blk. 1, A.C.H.&B. Sur.—Drlg. 1,890 ft.

The Texas Co.'s No. 4 Williams, 330 ft. each way from NE NE NW, Sec. 6, Blk. 1, A.C.H.&B. Sur.—Bldg. rig.

Wilcox-Pampa Oil Co.'s No. 7 Comb-Worley, 330 ft. N and E SW cor. SE, Sec. 60, Blk. 3, I.&G.N. Sur.—Drlg. 1,700 ft.

Wilcox-Pampa Oil Co.'s No. 8 Comb-Worley, 330 ft. NW of SE SE, Sec. 60, Blk. 3, I.&G.N. Sur.—Location.

HOCKLEY COUNTY

World Oil Co.'s N. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 ft.; contract depth 5,000 ft.—S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21—Drlg. 3,910 ft; show oil 3,780 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 2 Ingerton-A, 1,650 ft. from N line, 1,071 ft. from E line, Sec. 41, H.&T.C.R.R. Sur.—Drlg. 1,100 ft.

Holmes et als' No. 1 Moore, 330 ft. N and E SW cor. N½ E 80 ac., SE, Sec. 135, Blk. 4, I.&G.N.R.R. Sur.—Drlg. 2,145 ft.

Holmes et als' No. 2 Quinn, 990 ft. from S line and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur.—Spudding.

Huey et als' No. 3 Smith et al, 330 ft. from N and 600 ft. from W of S 40 ac. of E 160 ac., SE, Sec. 12, Blk. Y—Location.

Marland Prod. Co.'s No. 1 Sanford-C, 783 ft. N and 330 ft. W SE cor. N½, Sec. 79, Blk. 46, H.&T.C.R.R. Sur.—T.D. 2,785 ft; T.P. 2,782 ft; flowing 100 bbls. per hr.

McMan O. & G. Co.'s No. 2 Sanford, 300 ft. from W line and 315 ft. from S line N 274 ac., Sec. 33, Blk. 46, H.&T.C. Sur.—Drlg. 460 ft.

Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur.—S.D. 3,039 ft.

O. B. Penney's No. 2 Johnson Bros., 330 ft. from S line, 330 ft from W line W½ NE, Sec. 35, Blk. Y, A.&B. Sur.—Fish. 2,620 ft.

Phillips Pet. Co.'s No. 1 Johnson Bros., 330 ft. from N and W lines NW. Sec. 34, Blk. Y, A.&B. Sur.—Drlg. 710 ft.

Phillips Pet. Co.'s No. 4 Johnson, Sec. 28, Blk. Y, A.&B. Sur.—Location.

Phillips Pet. Co.'s No. 4 Perkins, 330 ft. from N and E N½, Sec. 2, Blk. 1, H.&G.N. Sur.—Location.

Phillips' No. 1 Sanford-Glass, 660 ft. S and E of NW cor. S 80 ac. of N 160 ac. of S 320 ac., Sec. 50, Blk. 46, H.&T.C. Sur.—Drlg. 2,030 ft.

Phillips Pet. Co.'s No. 6 (Florence), 330 ft. each way from S and W lines. E½—Rig.

Skelly Oil Co.'s No. 8 Whittenburg, 330 ft. from S and 2,230 ft. from W, Sec. 22, Jameson Sur.—Location.

Skelly Oil Co.'s No. 7 Whittenburg, 330 ft. from S and 1,570 ft. from W lines, Sec. 22, Jameson Sur.—Location.

KING COUNTY

Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line, Sec. 171, Blk. F, H.&T.C. Sur.—Rig.

LAMB COUNTY

Dan Freed et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur.—Drlg. 1,005 ft.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur.—S.D. 3,128 ft.

Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur.—S.D. 4,428 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch—Small show oil 1,133-40 ft; sand; fish 4,167 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Read-A, C NW, Sec. 14, Blk. 13-12, D.&P. Sur.—Bldg. rig.

Amarillo Oil Co.'s No. 1 Perkins-A, 330 ft. each way out of NW cor. NE, Sec. 76, Blk. 3—Moving in rig.

Amarillo Oil Co.'s No. 2 Warrick, C S 160 ac., Sec. 92, Blk. 46, H.&T.C. Sur.—T.D. 2,910 ft; 60,000,000 ft. gas from 1,580-2,910 ft; rebldg rig.

Barnsdall Oil Co.'s No. 1 Harrison, 330 ft. from N line and 330 ft. from E line S½ NE, Sec. 5, Blk. M-2—Stdzng. 2,830 ft.

Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W NE cor. Sec. 1, Eustice Sur.—17,000,000 ft. gas at 3,235-3,310 ft; T.D. 3,505 ft; first gas 2,910-3,030 ft; 27,000,000 ft. gas at 3,505 ft; shut in.

Dana O. & G. Co.'s No. 1 Anthony, C NW, Sec. 260, Blk. 44, H.&T.C.R.R. Sur.—Rig.

Dana O. & G. Co.'s No. 1 Road-A, C NW, Sec. 14, Blk. B-12—Location.

Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur.—Spudded and S.D.

Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E SW cor. E½ NW cor. Sec 244, Blk. 3-T, T.&N.O. Sur.—5,000,000 ft. gas from 2,825-2,935 ft; T.D. 3,115 ft; fishing tools; 10,000,000 ft. gas 3,020 ft; 20,000,000 ft. gas 3,040 ft.

Phillips No. 1 Wilson, 330 ft. each way out of NW cor. S½ SE, Sec. 157, Blk. 3-T—Spudding.

Skelly Oil Co.'s No. 8 Armstrong & Byrd, 2,920 ft. S and 3,752 ft. of NW cor. Proctor Sur.—Drlg. 600 ft.

Skelly Oil Co.'s No. 9 Armstrong & Byrd, 2,220 ft. S and 990 ft. E NW cor. Proctor Sur.—Rig.

MOTLEY COUNTY

Expltn. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C. B.&C.N.G.R.R. Sur.—S.D. 529 ft.

Expltn. Co.'s No. 6 Matador, 330 ft. from N line and 330 ft. from E line, Sec. 132, Blk. M—Rig.

Matador Oil Corp.'s No. 1 Owen, C NE, Sec. 19, Blk. G, B.&B. Sur.—Rig.

RANDALL COUNTY

W. H. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14—Drlg. 650 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A—S.D. 5,975 ft.

WHEELER COUNTY

Anderson's No. 1 Meiners, C SW SE, Sec. 71, Blk. 17, H.&G.N.R.R. Sur.—Rigging up.

Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur.—Fish. csg. 2,920 ft.

Gibson Oil Co.'s No. 7 Bentley, 330 ft. N and W of SE cor. NW SE, Sec. 42, Blk. 24, H.&G.N. Sur.—Show gas 2,155 ft; S.D. 2,316 ft; flowed 7 bbls. first 10 hrs.

Gillespie et als' No. 1 McMurtrey, C NW SE, Sec. 67, Blk. 17, H.&G.N. Sur.—Rigging up.

Lone Star Gas Co.'s No. 1 Griswold, C NE SE, Sec. 1, Blk. 24, H.&G.N. Sur.—Show of gas 1,785 ft.

Lone Star Gas Co.'s No. 1 Ridenger, C SW NW, Sec. 65, Blk. 17, H.&G.N.R.R. Sur.—Drlg. 1,885 ft; 10,000,000 ft. gas from 1,770 and 1,884-85 ft.

Magnolia Pet. Co.'s No. 1 Trostle, C S½ NW SW, Sec. 130, Blk. 23, H.&G.N.R.R. Sur.—Drlg. 1,280 ft.

L. W. Rook's No. 2-A Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur.—Temp. abd.

Upham Gas Co.'s No. 1 Gooch, C NE SE, Sec. 81, Blk. 17, H.&G.N. Sur.—Drlg. 1,460 ft.

GULF COAST WILDCATS

(Continued from Page 67)

So. Texas Pet. Co.'s No. 1 Burt, south side ..... Drlg. hard lime 4,010 ft.
Sun Oil Co.'s No. 47 River, north side ..... Coring 4,212 ft.
The Texas Company's No. 262 Landslide, south ..... To set casing 4,942 ft.; oil show.
The Texas Company's No. 263 Landslide, south ..... Cemented 6⅝-in. casing 3,707 ft.
The Texas Company's No. 264 Landslide, south ..... Drlg. sand and shale 1,963 ft.
The Texas Company's No. 265 Landslide, south ..... Derrick.
The Texas Company's No. 21 Wheeler & Pickens, south.. Shale and lime 3,487 ft.

BLUE RIDGE—FORT BEND COUNTY

Gulf Production Co.'s No. 15 Luscher, east side ..... Gummy shale 3,405 ft.
Moody Corp.'s No. 6 West-Schenck, south side ..... Preparing to deepen 4,590 ft.
Moody Corp.'s No. 7 West-Schenck, south side ..... Flowing 1,150 bbls. oil 4,467 ft.; oil 32.7 gravity at 86 degrees; 3 jts. 4½-in. screen.
Navarro Oil Co.'s No. 1-C Robinson, northwest ..... Hard lime 3,321 ft.
Sinclair Oil & Gas Co.'s No. 4 Davison, east side; old well drilling deeper ..... Drlg. 4,336 ft.
So. Texas Pet. Co.'s No. 1 Davison, east side, old well drilling deeper ..... Drlg. 3,982 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 8 Cain, east side ..... Flowing 750 bbls. 4,655 ft.
Gulf Production Co.'s No. 3 Fitzsimmons-Hamman, east side ..... Set one joint 4½-in. screen 4,443 ft.; flowing 394 bbls.
Gulf Production Co.'s No. 29 Taylor, southwest ..... Oil sand, set casing 3,811 ft.
Gulf Production Co.'s No. 30 Taylor, east ..... Drlg. hard sand and shale 2,001 ft.
Moody Corp.'s No. 4 Hume, northeast ..... Abandoned in salt 3,508 ft.
Moody Corp.'s No. 2 Calvert, northeast ..... oved location 50 ft. north; rigged up.
Moody Corp.'s No. 2-A Whitehead, northeast ..... Drlg. sand rock 1,518 ft.
Moody Corp.'s No. 1 Herman, southwest (old well) ..... Drlg. gumbo 1,140 ft.
Navarro Oil Co.'s No. 1-B Cain, east ..... Drlg. sand 4,851 ft.
Navarro & Humble Oil & Refg. Co.'s No. 3 Dooley (old well), east side ..... Drlg. gumbo 4,478 ft.
Navarro & Texas Exploration Co.'s No. 15 Dooley, east side ..... Oil sand 4,484 ft.
Pure Oil Co.'s No. 1 Herman estate, southwest ..... Pulling strainer to deepen; tested salt water 4,090 ft.
Rio Bravo Oil Co.'s No. 4 fee, west side (old well) ..... Drlg. 3,466 ft.
Rio Bravo Oil Co.'s No. 14-A Settegast, west ..... Derrick standing.
Rio Bravo Oil Co.'s No. 15-A Settegast, southwest ..... Drlg. gumbo and lime 2,659 ft.
Saxet Gas Co.'s No. 2 Herman estate, southwest ..... Pulling strainer to deepen; tested salt water 3,735 ft.
Saxet Gas Co.'s No. 3 Herman estate, southwest ..... Location standing.
Smith et al's No. 3 Parson (old well), northwest ..... Sidetracking approx. 4,410 ft.; total depth 4,719 ft.
So. Texas Pet. Co.'s No. 1 Meyers, southeast side wildcat.. Drlg. shale 5,042 ft.
Shaw & Texas Exploration Co.'s No. 2-E Fitzsimmons... To deepen 4,390 ft.
Shaw & Texas Exploration Co.'s No. 3 Fitzsimmons-Barron ..... Derrick standing.
Shaw & Texas Exploration Co.'s No. 2-F Fitzsimmons... Location.

LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 3 Goggan ..... Rigged; standing high water.
Humble Oil & Ref. Co.'s No. 4-B Reviere ..... Drlg. broken shale 2,906 ft.
J. W. O'Brien's No. 1 Hanszen ..... Standing; cavity 660 ft.
Mecom Oil Co.'s No. 1 Barrett ..... To pump 2,890 ft.
Navarro Oil Co.'s No. 5 Baldwin Community ..... Location.
Pierce & Rogers' No. 1 Pickett ..... Drlg. 412 ft.
Sun Oil Co.'s No. 44 Mitchell ..... Pumping 40 bbls. net; sand 1,248 ft.; total depth 1,292 ft.; plugged to 1,248; pumping 40 bbls. net.
Sun Oil Co.'s No. 45 Mitchell ..... Rigged up; standing high water.
The Texas Company's No. 21 Staiti ..... Rigging up.
The Texas Company's No. 3 Pickett ..... Sand and shale 5,174 ft.; shut down high water.
Vacuum Oil Co.'s No. 11 Barrett ..... Setting tubing 2,817 ft.
Yount Lee Oil Co.'s No. 17 Mitchell ..... Gumbo 639 ft.; shut down high water.

HULL—LIBERTY COUNTY

Daisetta Oil Co.'s No. 1 Wilson ..... Drlg. 1,132 ft.
Empire Gas & Fuel Co.'s No. 21 Barngrover ..... Drlg. 3,747 ft.
Gulf Production Co.'s No. 64 Phoenix (old well) ..... To deepen 3,063 ft.
Gulf Production Co.'s No. 25 Morris-Phillips, north side semiwildcat ..... Heaving shale 5,267 ft.
Humble Oil & Ref. Co.'s No. 4 Hooks-Spell (old well).... To deepen 3,263 ft.
Republic Production Co.'s No. 65 Dolbear (old well) ..... Drlg. 2,736 ft.
Republic Production Co.'s No. 97 Dolbear (old well) ..... Deepened to 2,247 ft.; flow 1,500 bbls.
Republic Production Co.'s No. 113 Dolbear (old well) .... To deepen 2,680 ft.
Republic Production Co.'s No. 1 Taylor ..... Drlg. 3,307 ft.

BIG CREEK—FORT BEND COUNTY

Benedum & Trees' No. 2 Ahlers ..... Rigged up.
Gulf Prod. Co.'s No. 37 Davis (old well) ..... To deepen 4,153 ft.
Gulf Prod. Co.'s No. 53 Davis ..... Drlg. hard sand showing oil 4,035 ft.
Navarro Oil Co.'s No. 4 Davis ..... Rigging up.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 26 Wisdom ..... Drlg. surface formations 216 ft.

BATSON—HARDIN COUNTY

Acorn Oil Co.'s No. 70 Paraffine ..... Drlg. 717 ft.
Capitol Oil Co.'s No. 11 Hodges ..... To pump 3,190 ft.
East Batson Oil Co.'s No. 14 Donoho & Cashen ..... Pumping 25 bbls. fluid; 4 bbls. net oil 527 ft.
Hill & Dowell's No. 97 Milholm ..... Oil sand 1,161 ft; bailing.
Paraffine Oil Co.'s No. 46 Paraffine ..... Tested salt water 1,158 ft.

SOUR LAKE—HARDIN COUNTY

Gulf Prod. Co.'s No. 3 Thomason (workover) ..... Drlg. 4,157 ft.
Lake View Oil Co.'s No. 3 B. & E. ..... Oil sand 1,108 ft.; set casing.
Minor Oil Co.'s No. 1 Hart ..... Oil standing in hole 824 ft.; to pump.

SARATOGA—HARDIN COUNTY

Cullen & West's No. 1 Bashara (Baker) ..... Drlg. hard lime and sand 4,401 ft.
Weldon Oil Co.'s No. 7 Bradley-Hooks ..... Drlg. 915 ft.
E. W. Skinner's No. 2 Sissler ..... Drlg. 2,047 ft.

ORANGE—ORANGE COUNTY

Brownie-Babbett Oil Co.'s No. 8 McLean (workover) .... Compressor pumping 29 bbls. net oil 4,024 ft.
Orange Pet. Co.'s No. 2 Berwick (workover) ..... Compressor pumping 10 bbls. net oil 3,067 ft.
Sinclair Oil & Gas Co.'s No. 5 Granger (workover) ..... Compressor flowing 150 bbls. net oil 3,029 ft.
Supreme Oil Co.'s No. 3 Jackson (workover) ..... Compressor pumping 30 bbls. net oil 4,634 ft.

GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 75 Simms-Smith ..... Preparing to deepen; tested salt water with small amount of oil 4,419 ft.
C. T. Rucker's No. 1 Jones ..... Standing 200 ft.
Russell Farrell's No. 5 Gillette (old well) ..... Oil sand 2,562 ft.; bailing.

SPINDLETOP—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 8 Roche (workover) ..... Tested salt water 3,420 ft.
Unity Oil Co.'s No. 14 Gladys City ..... Oil standing; to pump.
Yount Lee Oil Co.'s No. 26 McFaddin (workover) ..... Drlg. 3,277 ft.
Yount Lee Oil Co.'s No. 49 McFaddin (workover) ..... Drlg. shale 4,005 ft.
Yount Lee Oil Co.'s No. 104 McFaddin ..... Sand 3,186 ft.
Yount Lee Oil Co.'s No. 105 McFaddin ..... Drlg. gumbo 1,386 ft.
Yount Lee Oil Co.'s No. 106 McFaddin ..... Rigging.
Yount Lee Oil Co.'s No. 4 fee (workover) ..... Drlg. shale 4,281 ft.
Yount Lee Oil Co.'s No. 3 Gladys City (workover) ..... Abandoned 3,527 ft.
Yount Lee Oil Co.'s No. 76 Gladys City ..... Sidetracking in lime 3,578 ft; total depth 6,114 ft.; heaving shale.
Yount Lee Oil Co.'s No. 86 Gladys City ..... Sand shale showing oil 2,724 ft.; set screen.
Yount Lee Oil Co.'s No. 91 Gladys City ..... Spudded.
Yount Lee Oil Co.'s No. 92 Gladys City ..... Rigging up.

WEST COLUMBIA—BRAZORIA COUNTY

The Texas Company's No. 24 Arnold ..... Location standing.

HIGH ISLAND—GALVESTON COUNTY

Gulf Prod. Co.'s No. 8 Smith ..... Tested salt water 2,984 ft.; abandoned.
Marrs McLean's No. 15 Cade ..... Oil sand 3,387 ft.; set screen

DAMON MOUND—BRAZORIA COUNTY

Sinclair Oil & Gas Co.'s No. 6 Norton ..... Drlg. shale 3,753 ft.
Leonard Petroleum Co.'s No. 4 Wisdom ..... Drlg. sand and shale 2,019 ft.

MARKHAM—MATAGORDA COUNTY

Rycade Oil Corp.-Humble Oil & Ref. Co.'s No. 6-A Kountze ..... Fishing screen to deepen; tested small amount of oil 3,797 ft.
West Prod. Co.'s No. 1 Myers ..... Drlg. sand rock 4,407 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 19 Moore ..... Drlg. hard sand 3,089 ft.

NORTH DAYTON—LIBERTY COUNTY

Fort Bend Oil Co.'s No. 1 Ballarack ..... Oil sand; set 22 ft. 4½-in. strainer 3,704 ft.; testing.
Sun Oil Co.'s No. 2 Kovelcik ..... Coring 4,528 ft.

SOUTH LOUISIANA FIELDS
LOCKPORT—CALCASIEU PARISH

Shell Petroleum Corp.'s No. 1 Miller ..... Drlg. hard sandy lime 5,446 ft.
The Texas Company's No. 1 Moss ..... Tested salt water 4,715 ft.; to deepen.
Vacuum Oil Co.-Gulf Ref. Co.'s No. 9 Miller ..... Preparing to work-over 4,392 ft.
Vacuum & Gulf's No. 15 Miller ..... Sand showing oil 5,068 ft.; to set casing.
Vacuum & Gulf's No. 24 Miller ..... Drlg. sandy shale 4,114 ft.
Vacuum & Gulf's No. 3 Bayou d'Inde ..... To pump 4,400 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 6 Dorion ..... Sidetracking 2,778 ft.; total depth 3,996 ft.
Calcasieu Oil Co.'s No. 14 Watkins ..... Location.
Calcasieu Oil Co.'s No. 7 Valery ..... Location.
Cameron Oil Co.'s No. 2 Vincent, Old Hackberry ..... Drlg. sand 2,347 ft.
Fraim Oil Co.'s No. 1 Duhon, Old Hackberry ..... Standing 4,384 ft.
Progressive Oil Co.'s No. 1 Little, Old Hackberry ..... Pulling screen; tested S. W. 3,086 ft.
Rycade Oil Corp.-Humble Oil & Refg. Co.'s No. 3 Gulf Land, Old Hackberry ..... Derrick.
The Texas Company's No. 3-B Calcasieu Lake, East Hackberry ..... Resumed flowing when being rigged up to work-over; flow 400 bbls. net 3,941 ft.
The Texas Company's No. 5-B Calcasieu Lake, East Hackberry ..... Location standing.

JENNINGS—ACADIA PARISH

Cline, Smith & Cline's No. 9 Conklin, Section 46-9s-2w .. Derrick.
Fred Getty's No. 3 Jennings-Clemont ..... Location.
E. L. Meyers' No. 1 Clemont-Zigler (old well) ..... To work-over 1,805 ft.
Port City Oil Co.'s No. 11 Syndicate Fee, Section 46-9s-2w ..... Derrick.
Reliable Oil Co.'s No. 2 Jennings-Heywood ..... Location.
Yount Lee Oil Co.'s No. 6 Housierre-Latrielle, southeast flank, Section 47-9s-2w ..... Set 3 joints screen; well tried to blow in; running tubing; oil sand 7,288 ft.
Yount Lee Oil Co.'s No. 4 Crowley, northeast flank, Section 48-9s-2w ..... Set casing 7,009 ft.; total depth oil sand 7,115 ft.

EDGERLY—CALCASIEU PARISH

C. M. Crotty's No. 7 Lillard (work-over) ..... Set 10 ft. 4½-in. strainer 2,530 ft.; pumping 50 bbls. fluid; 35 bbls. net oil.
Rex Petroleum Co.'s No. 9 Hunter (work-over) ..... Drlg. 2,765 ft.
Wilson-Broach's No. 3 Wilson (work-over) ..... Drlg. 2,976 ft.

VINTON—CALCASIEU PARISH

Gulf Refining Co.'s No. 68 G. & N. Gray ..... Drlg. 2,943 ft.
Gulf Refining Co.'s No. 32 Star-Vincent (work-over) .... Drlg. 3,736 ft.
Marrs McLean's No. 4 Gray (work-over) ..... Drlg. 1,663 ft.
Salt Dome Oil Co.'s No. 2 Shaw ..... Shut down 1,205 ft.
Vinton Petroleum Co.'s No. 3 Matilda Gray ..... Drlg. 2,867 ft.
Vinton Petroleum Co.'s No. 14 Gray (work-over) ..... To deepen.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 7 Bouillon Fee ..... Sidetracking 3,197 ft.; total depth 3,854 ft.
Rycade Oil Corp.'s No. 3 State ..... Oil sand; set 6⅝-in. casing 3,320 ft.

STARKS—CALCASIEU PARISH

Gulf Refining Co.'s No. 15 Lutcher-Moore ..... Heaving shale 4,830 ft.
Gulf Refining Co.'s No. 13 Industrial ..... Drlg. 5,456 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 736 Fee ..... Gumbo 5,352 ft.
Union Sulphur Co.'s No. 746 Fee, Sec. 29-9s-10w ..... Location.
Union Sulphur Co.'s No. 747 Fee, Sec. 29-9s-10w ..... Location.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 7 Yount Lee ..... Fishing screen to deepen 5,426 ft.

SORRENTO—ASCENSION PARISH

Gulf Refining Co.'s No. 14 United Land ..... Lose returns 3,939 ft.; abandoned.

MISCELLANEOUS WILDCATS
TEXAS
AUSTIN COUNTY

Flanigan & Mewis' No. 1 Mewis, James P. Stevenson sur., east of Bellville ..... Shut down 3,498 ft.
Whittington et al's No. 1 Lass, 4 miles northwest of Bellville ..... Derrick.

BRAZORIA COUNTY

Shell Petroleum Corp.'s No. 4 Allen, Allen dome ..... Fluid standing 2,900 ft. in hole from sand at 4,950 ft.; bailing; total depth 5,184 ft.
Meyers et al's No. 3 Davidson, Clemens ..... Abandoned in gyp 930 ft.
Empire Gas & Fuel Co.'s No. 3 Brock, Stratton Ridge .. Drlg. hard sand and lime 3,664 ft.
Humphreys Corp.'s No. 1 Bryan, Bryan Mound ..... Drlg. hard lime 3,355 ft.

CHAMBERS COUNTY

Pure Oil Co.'s No. 2 Mayes, Lost Lake ..... Shut down high water 1,992 ft.
Pure Oil Co.'s No. 3 Mayes, Lost Lake ..... Shut down high water 1,871 ft.

FORT BEND COUNTY

Humble Oil & Refg. Co.'s No. 1 Miller, Rosenberg ..... Drlg. sandy lime 755 ft.
So. Texas Pet. Co.'s No. 1 Winkleman, Needville ..... Drlg. gumbo 4,327 ft.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Shut down 3,841 ft.
Humble Oil & Refg. Co.'s No. 1 Irvin, Mykawa ..... Trying to sidetrack second time; total depth 3,810 ft.; drill stem stuck.
Humble Oil & Refg. Co.'s No. 5 Warren, Hockley ..... Drlg. sandy shale 4,720 ft.
Humble Oil & Refg. Co.'s No. 1 Woodburn, Genoa ..... Drlg. 1,638 ft.
Little York Oil Co.'s No. 1 Davis, Little York ..... Shut down 3,827 ft.
Paxton and associates' No. 1 Brubacker, Clodine ..... Shut down 1,146 ft.
Paxton & Pundt's No. 1 Brown, Wooster ..... Shut down 1,830 ft.
York & Robertson's No. 1 Garrett, Harris & Carpenter survey ..... Location.

JEFFERSON COUNTY

Bleakie Oil Co.'s No. 1 Tolliver, Dyches survey ..... Shut down 2,237 ft.
I. W. Farhar's No. 1 Rohwedder, Spear survey ..... Abandoned 2,965 ft.
Gulf Production Co.'s No. 7 Bordages, Fannette ..... Drilled plug at 5,287 ft.; coring oil sand 5,524 ft.
Gulf Production Co.'s No. 11 Thomas, Fannette ..... Drilled plug at 5,265 ft.; coring oil sand 5,320 ft.
Nederland Oil & Dev. Co.'s No. 1 Young, Nederland ..... Shut down 2,100 ft.
River Oil Corp.'s No. 1 Ship Channel, Brown survey ..... Shut down; gumbo 1,721 ft.
Shell Petroleum Corp.'s No. 1 Heisig, Hampshire ..... Drlg. water sand 4,851 ft.
The Texas Company's No. 1 Pipkin, Big Hill ..... Washing 5,730 ft.; total depth 5,943 ft.; unable to pull drill stem because of gas pressure.

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—RUBBER protectors with the grip of STEEL

. . . will outwear all others — rubber is in its natural state, unexpanded.

. . . will not move under normal drilling conditions, all of your pipe being protected all of the time.

. . . easily installed without breaking a tool joint—no special installation equipment needed.

. . . will not jump a tool joint or "pop off" under extreme pressure.

. . . 100% salvage value—can be removed easily when pipe is ready to be laid down or discarded.

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. . . multiplies pressure 2½ times.

. . . compounded 2½ to 1 against the "kick".

. . . heavier steel bands.

. . . greater braking surface.

. . . easily adjusted at top of drum.

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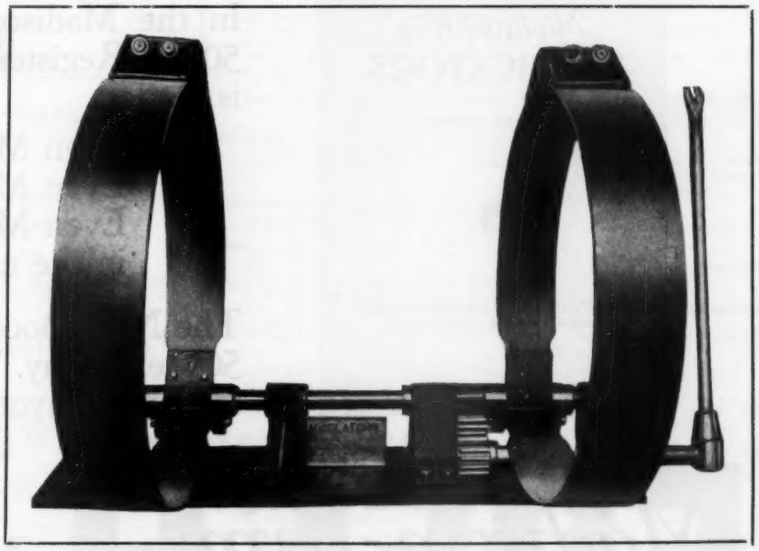

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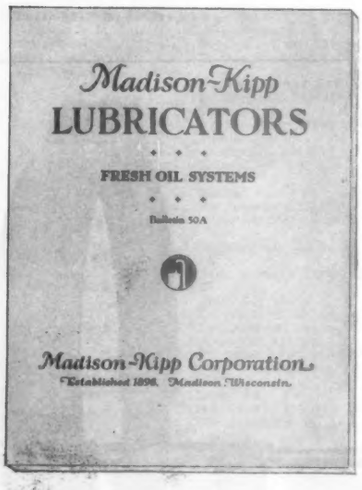

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FRESH OIL

Madison-Kipp Lubricators

Lubrication Specialists Since 1898 *Madison, Wisconsin, U.S.A.*

Vacuum Oil Co.'s No. 1 Herbert-Broussard, T. & N. O. survey No. 208 ..... Location.

LIBERTY COUNTY

Gulf Production Co.'s No. 1 Boyt, Hankamer ..... Oil sand 2,685 ft.; set screen.
Humble Oil & Refg. Co.'s No. 5 Sterling, Moss Bluff .... Drlg. gumbo 1,370 ft.
Republic Production Co.'s No. 1 Myslivec, Moore survey .. Shale and lime 3,216 ft.

MATAGORDA COUNTY

Crossland and associates' No. 1 Hawkins, Shepherds Mott. Heaving shale 5,260 ft.

MONTGOMERY COUNTY

Cullen and associates' No. 1 Chase, near Westfield ..... Rigged up.
Harper Drilling Co.'s No. 1 Gay, W. Landrum survey .. No report.

ORANGE COUNTY

Veteran Oil Co.'s No. 1 Reed, A. Nelson survey ..... Shut down 3,600 ft.

WALLER COUNTY

The Texas Company's No. 1 Young, Irons & Groce survey ..... Shut down; high water 3,838 ft.

SOUTH LOUISIANA
ASCENSION PARISH

Gulf Refining Co.'s No. 14 United Land, Sorrento ..... Abandoned 3,939 ft..
Belle Helene Oil Co.'s No. 1 Desiere Breaux, Darrow .. Drlg. 800 ft.
Big Dome Dlg. & Dev. Co.'s No. 1 Reardom, Darrow .... Drlg. 3,250 ft.
Triumph Oil Corp.'s No. 2 Lacey, Sec. 29-10s-4e ..... Rebuilding derrick to fish stuck drill pipe 2,515 ft.

CALCASIEU PARISH

Wilfred LaHay's No. 2 James, Section 14-10s-13w ..... Shut down 3,365 ft.
J. O. Davis' No. 1 Mims, Section 26-9s-7w ..... Drlg. gumbo 3,817 ft.

CAMERON PARISH

Shell Petroleum Corp.'s No. 10 Watkins, Black Bayou .. To pump 979 ft.
Shell Petroleum Corp.'s No. 11 Watkins, Black Bayou .. Drlg. sand 381 ft.
The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake dome ..... Drlg. anhydrite 3,492 ft.

EVANGELINE PARISH

The Texas Company's No. 1 Guillory, Pine Prairie ..... Drlg. rock 1,804 ft.

IBERIA PARISH

The Texas Company's No. 3-A Vermillion Bay ..... Fishing; total depth 4,694 ft.; rock.
Gulf Refining Co.'s 9-Z State, Loreauville ..... Rigged up.

IBERVILLE PARISH

Shell Petroleum Corp.'s No. 3 Wilbert, White Castle .... Drlg. sandy shale and lime 5,104 ft.
Standard Oil Co.'s No. 2 Wilbert, Bayou Blue ..... Drlg. 3,236 ft.
Standard Oil Co.'s No. 3 Wilbert, Bayou Blue ..... Canal dredged to location.
Standard Oil Co.'s No. 1 Schwing, Bayou Blue ..... Drlg. rock 4,683 ft.
Standard Oil Co.'s No. 2 Schwing, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 3 Schwing, Bayou Blue ..... Location.
Standard Oil Co.'s No. 4 Schwing, Bayou Blue ..... Location.
Standard Oil Co.'s No. 5 Schwing, Bayou Blue ..... Derrick.

PLAQUEMINE PARISH

The Texas Company's No. 1 Garden Island Bay, Section 107-23s-32e ..... Tested salt water 1,682 ft.
Gulf Refining Co.'s No. 1 Morris & Rose, Section 26-21s-30e ..... Rig standing because of litigation.

ST. LANDRY PARISH

Gulf Refining Co.'s No. 1 Gaudet, Point Barre ..... Drlg. shale 3,212 ft.
The Texas Company's No. 2 Botney Bay, Point Barre.... Set 8¼-in. casing; oil showing 3,552 ft.

ST. MARTIN PARISH

Ohio Oil Co.'s No. 3 Martin, Hager dome ..... Standing 4,490 ft.
The Texas Company's No. 1 Fee, Hager Dome ..... Shut down; high water 1,233 ft.
The Texas Company's No. 2 St. Martin, Hager ..... Rig standing; high water.

ST. TAMMANY PARISH

St. Tammany Oil Co.'s No. 2 Fritchie, Sec. 35-8s-14e .... Water sand 1,646 ft.

TANGIPAHOA PARISH

Joan Development Co.'s No. 1 Hilton ..... Gumbo 2,410 ft.

TERREBONNE PARISH

Southern Gas Co.'s No. 1 Waterproof, Houma ..... Shut down 875 ft.
The Texas Company's No. 1 L. L. & E., Four Isle Bayou .. Rigged.
The Texas Company's No. 1-A Timbalier Bay, Section 19-23s-20e ..... Set 12½-in. casing 117 ft; shut down for water.
The Texas Company's No. 2-A Dog Lake Bayou, 400 ft. south of No. 1 ..... Location.
The Texas Company's No. 1 Bay Coon Road, Bay St. Elaine Dome, Section 17-22s-18e ..... Gas blow out under control; gauged 15,000,000 ft. with sulphur odor; 653 ft.
The Texas Company's No. 1-B Lake Pelto, Section 8-23s-18e ..... Gas showing 121 ft.
The Texas Company's No. 1 Taylor, East Bay Junop Dome ..... Driving piling.
The Texas Company's No. 2-A Lake Bane, Section 30-21s-20e ..... Location.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 80)

CROCKETT COUNTY

Eppenaur et al's No. 2 Noelke, 500 ft. N and 1,250 ft. E of SE cor. Sec. 64, Blk. 1, I.&G.N.R.R. Sur. ..... Shut down 565 ft.
Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur.. Shut down 1,002 ft.
W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur. ..... Shut down 745 ft.
W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,663 ft.; shut down 1,755 ft.
W. A. Moncrief et al's No. 1 Massie, 1,170 ft. N and 1,320 ft. E of SW cor. Sec. 47, Blk. UV, G.C.&S.F. Sur. ..... 3,000,000 ft. gas 1,198 ft.; shut down 1,233 ft.; rig burned.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 3 Kloh, 380 ft. N and 1,388 ft. W Sec. 39, Blk. 59 ..... Location.
Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W Sec. 20, Blk. 82 ..... Small oil show 1,331 ft.; pipe set 1,418 ft.; drlg. 2,175 ft.
W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 ... Shut down 720 ft.; preparing to start up.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; drlg. 2,135 ft. sand.

EL PASO COUNTY

Sillex's No. 1 Malone, 2,200 ft. SW and NW Sec. 46, J. M. Day Sur. ..... Shut down 1,010 ft.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. ..... Drlg. 2,000 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. .... Shut down 2,000 ft. for orders.
Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur.. Shut down 3,486 ft.
Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. ..... Oil show 2,905 ft.; set 6-in. 3,160 ft.; shut down 3,218 ft.
Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbett Sur. No. 331 ..... Shut down 3,415 ft.
Gillman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,326 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Shut down 5,502 ft.
Magnolia Pet. Co.'s No. 1 Lee, Sec. 357, 2,310 ft. from N and 4,286 ft. from W ..... Spudding.
Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land ..... Shut down 2,985 ft.
Roeser & Pendleton's No. 2 Haught, Sec. 191, Blk. 1, 590 ft. from N and 1,320 ft. from W ..... Location.
Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ..... Hole full water 2,185 ft.; underreaming 3,225 ft.
White Eagle Oil & Ref. Co.'s No. 1 Hughes, 4,942 ft. S and 560 ft. W of NE cor. Cosby Sur. 320 ..... Drlg. by tools.

GARZA COUNTY

Emerald Oil Co.'s No. 1 J. C. Bargsley, 2,310 ft. from E and 330 ft. N of SW cor. Sec. 135, Blk. 5, H.&G.N. .... Location.
Emerald Oil Co.'s No. 1 J. S. Reed, 990 ft. W and 330 ft. N of SE cor. Sec. 135, Blk. 5, H.&G.N.R.R. Sur. ..... T. D. 2,546 ft.; 300 ft. oil in hole; T. P. 2,527 ft. To shoot.
Gulf Prod. Co.'s No. 1 Street, C Sec. 7, Blk. 8, H.&G.N. R.R. Sur. ..... Rig.
Texas State Oil Co.'s No. 1 Edward, 990 ft. W, 330 ft. N of SE cor. Sec. 19, Blk. 34, Twp. 2s, T.&P. ..... Location.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. .. Shut down 500 ft.
Gibson-Johnson's No. 1 Dean, 1,320 ft. S and E of NW cor. Sec. 2, Blk. 33, Twp. 2s, T.P.R.R. Sur. ..... Drlg. 800 ft.
Houston Oil Co.'s No. 1 McDowell, 330 ft. from N and 2,310 ft. from E Sec. 30, Blk. 33, Twp. 2s ..... Location.
Kirby Pet. Co.'s No. 1 Phillips, Sec. 23, Blk. 33, Twp. 2s, 330 ft. from N and 2,310 ft. from W ..... Location.
Texas State Oil Co.'s No. 1 Coffey, 330 ft. from S and 990 ft. from E Sec. 19, Blk. 34, Twp. 2s ..... Location.
World Oil Co.'s No. 3 McDowell, Sec. 21, Blk. 34, Twp. 2s, 990 ft. from N, 2,310 ft. from W ..... Location.

HOWARD COUNTY

Amerada Pet. Corp.'s No. 10 Roberts, Sec. 137, Blk. 29, 990 ft. from N and 330 ft. from E ..... Drlg. 1,917 ft.
F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Fishing 2,510 ft.
F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 ..... Set 6-in. casing 2,930 ft.; shut down.
Fuhrman Pet. Co.'s No. 1 Read, 2,310 ft. N and 330 ft. E of SW cor. Sec. 41, Blk. 32, Twp. 1n, T.&P.R.R. Sur.. Location.
Gibson & Johnson's No. 1 Read, 660 ft. N and W of SE cor. Sec. 47, Blk. 30, Twp. 1n, T.&P.R.R. Sur. ..... T. D. 2,715 ft.; 300 ft. oil in hole.
Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ..... Shut down 3,514 ft.
Humble O. & R. Co.'s No. 3 Clay, Sec. 138, Blk. 29, 1,650 ft. from N and 330 ft. from W ..... Drlg. 1,601 ft.
Magnolia Pet. Co.'s No. 2 Hyman, 1,320 ft. W and 1,320 ft. N of SE cor. Sec. 88, Blk. 29, W.&N.W. Sur. ..... Drlg. 890 ft.
Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Shut down 2,927 ft.
Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Shut down 2,675 ft. with show oil 2,595-2,675 ft.
Marland Prod. Co.'s No. 1 Clay-I, 210 ft. E and 1,520 ft. N of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Top pay 1,815 ft.; shut down 1,851 ft.; swabbed 10 bbls.
Marland Oil Co.'s No. 1 Clay-H, 330 ft. S and 990 ft. W of NE cor. Sec. 155, Blk. 29 ..... Location.
Marland Oil Co.'s No. 2 Clay-H, 990 ft. S and W of NE cor. Sec. 155, Blk. 29 ..... Location.
McGinley & Seigler's No. 1 Barnett, 330 ft. S and E of NW cor. Sec. 92, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 160 ft.
McGinley et al's No. 2 Hyman, Sec. 92, Blk. 29, W.& N.W.R.R. Sur. ..... Rigging up.
Meriweather's No. 1 Smith, 150 ft. from S, 2,490 ft. from W Sec. 45, Blk. 32 ..... Location.
Moody Oil Corp.'s No. 11 Roberts-E, 1,650 ft. S and W of NE Sec. 136, Blk. 29, W.&N.W.R.R. ..... Drlg. 1,180 ft.
Moody Oil Corp.'s No. 12 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N and 2,310 ft. E ..... Set 6-inch casing 1,348 ft.
Moody Oil Corp.'s No. 13 Roberts-E, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur.. Drlg. 2,601 ft.; top pay 2,571 ft.; bailing.
Moody Corp.'s No. 14 Roberts-E, Sec. 136, Blk. 29, 1,650 ft. from N, 990 ft. from E ..... Location.
Peck et al's No. 1 Scrivner, 2,440 ft. S and E of NW cor. Sec. 12, Blk. 32, Twp. 2s, T.&P.R.R. ..... Drlg. 2,306 ft.
Plymouth Oil Co.'s No. 2 Kloh et al, 900 ft. S and 1,650 ft. W of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ..... Top pay 2,236 ft.; swabbing; total depth 2,300 ft.; cleaning out; 1,700 ft. oil in hole.
Plymouth Oil Co.'s No. 3 Kloh et al, 1,650 ft. S and 990 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Top pay 2,189 ft.; hole full oil; shut down 2,300 ft. to put on pump.
Schermerhorn Oil Co.'s No. 6 D. Roberts-A, 1,650 ft. S and 330 ft. W of NE cor. Sec. 137, Blk. 29, W.& N.W.R.R. Sur. ..... Drlg. 2,655 ft.
Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 280 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Shut down 200 ft.
Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Straightreaming 2,565 ft.
Ward Oil Co.'s No. 7 Roberts, 2,310 ft. N and 380 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Shut down 1,987 ft.

HUDSPETH COUNTY

Western States Oil Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ..... Drlg. 670 ft.
California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ..... Set 16-in. casing 591 ft.; drlg. 1,412 ft.
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Shut down 2,685 ft.; fishing.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Shut down 3,140 ft.; fishing.

IRION COUNTY

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W Subd. 8 ..... Location.
Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 2,024, Blk. 24, H.&T.C. Sur. ..... Drlg. 1,250 ft.
Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur... Show oil 1,318-29 ft.; total depth 1,329 ft.; swabbing 15 bbls.; cleaning out.
Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land .. Set 6-in. casing 1,360 ft.; cleaning out; T. P. 1,318 ft.; 500 ft. fluid in hole; 40 per cent water; shut down 1,420 ft.
Pecos Valley Oil Co.'s No. 2 Stocks, Sec. 19, Blk. 3, 1,020 ft. from S and W, H.&T.C. Sur. ..... Drlg. 465 ft.
Webb's No. 2 Nutt, 200 ft. from N and 711 ft. from E Subd. 5 ..... Location.
Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. .. .. Top pay 2,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-88 ft.; show oil 5,660-70 ft.; show oil 6,772-75 ft.; drlg. 6,862 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,623 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. — Show gas 3,271 ft.; fresh water 3,000-05 ft.; underreaming & 3/16-in. casing; drlg. 4,005 ft.; 600 ft. fresh water 4,000-26 ft

JONES COUNTY

Condor Pet. Co.'s No. 1 McDonald, 340 ft. S and 240 ft. W of NE cor. Lot 59, G. A. Kirkland Sur. A-550 — Drlg. 2,461 ft.
J. E. Brewer's No. 1 Goodman, 150 ft. N and E of SW cor. Sec. 15, Blk. 19, T.&P.R.R. Sur. — Location.
Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 310 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. — Rigged up and shut down.
Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW Sec. 50, Blk. 18 — Rig.
W. G. Clark et al's No. 1 Collins, 330 ft. S and E of NW cor. Sec. 29, Blk. 18, T.&P.R.R. Sur. — Location.
W. G. Clark et al's No. 1 Dickenson, W 80 ac. of N 160 ac. of S 320 ac. out of H. B. Williams Sur. No. 273 — Drlg. 2,405 ft.
P. K. French's No. 1 Lieson, 150 ft. N and E of SW cor. of E half NW Sec. 31, Blk. 14, T.&P.R.R. Sur. — Running 6-in. casing 1,540 ft.
Humble Oil & Ref. Co.'s No. 2 Bickley, 330 ft. S and W of NE cor. of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. — Rig.
McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 29, B.B.B.&C. — Drlg. 2,100 ft.
McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land — Spudded and shut down.
Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur. — Location.
The Texas Company's No. 2 Camp, 2,829 ft. N and 323 ft. W of SE cor. Camp 189.5-acre lease, Sec. 13, T.&P. Sur., Blk. 19 — Total depth 2,355 ft.; skidding rig.
The Texas Company's No. 3 Camp, 1,189 ft. S and 326 ft. W of NE cor. of Sec. 13 ,Blk. 19, T.&P. — Drlg. 2,375 ft.
U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-233 — Drlg. 2,405 ft.
E. M. Treat Oil & Gas Co.'s No. 1 Hodge, 750 ft. S and 2,714 ft. W of NE cor. of S half A. Bell Sur. — Drlg. 1,650 ft.
W. D. Wells et al's No. 1 Britton, 150 ft. N and 390 ft. E SW cor. 640-ac. tract, H.&W. Sur. 354-355 — Drlg. 2,450 ft.
White Eagle Oil & Ref. Co.'s No. 1 W. B. Teague, 933 ft. N and W of SE cor. Sec. 30, Austin & Williams Sur. No. 339 — Drlg. 980 ft.

KIMBLE COUNTY

Lindsay Bros.' No. 1 Anderson, Sec. 167, 1,320 ft. from N and E — Shut down 100 ft.
McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. — Drlg. 558 ft.

LOVING COUNTY

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C. R.R. Sur. — Drlg. 614 ft.
Lockhart & Co.'s No. 2 Hayzell, 330 ft from NE and SE line of Sec. 84, Blk. 33, H.&T.C.R.R. Sur. — Top salt 700 ft.; drlg. 1,910 ft.
Lockhart & Co.'s No. 1 Johnson, 660 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 56, Twp. 1, T.&P.R.R. Sur. — Top salt 1,110 ft.; drlg. 2,565 ft.
Lockhart & Co.'s No. 1 Wheat-H, 990 ft. from NE and SE lines Sec. 85, Blk. 33, H.&T.C.R.R. Sur. — Top salt 720 ft.; set 8¼-in. casing 2,295 ft.; show oil 4,147 ft.; swabs 10 bbls. per day; total depth 4,197 ft.; shot 110 quarts 4,150-80 ft.; flowing 2 bbls.

MENARD COUNTY

Cromwell & Duffey's No. 1 Winslow, C SE Sec. 32, T.&N.O. Sur. — Drlg. 1,450 ft.

MIDLAND COUNTY

Phillips Pet. Corp.'s No. 1 Stokes, 440 ft. S and W of NE cor. S. Beall Sur. No. 101, Blk. 37, Twp. 2s, T.P.R.R. Sur. — Top salt 1,610 ft.; top lime 3,720 ft.; fishing 3,915 ft.
Shoupe et al's No. 1 Roy Parks, 1,320 ft. N and W Sec. 34, Blk. 41 — Top lime 4,744 ft.; shut down 4,980 ft.

MITCHELL COUNTY

Harry Adams' No. 2 Ellwood, Sec. 15, Blk. 18, 1,170 ft. from S and 2,490 ft. from W — Total depth 570 ft.; 1,500,000 ft. gas.
The California Co.'s No. 2, Clark Lease No. 2, 2,190 ft. N and E of SW cor. Sec. 14, Blk. 28, Twp. 1n, T.P.R.R. Sur. — Drlg. 2,790 ft.
California Co.'s No. 7 Foster, Lease No. 1, Sec. 6, Blk. 29, Twp. 1s, T.P.R.R. Sur. — Rig.
McGinley & Seiger's No. 1 Scott, C of NE of SW Sec. 36, Blk. 17, S.P.R.R. Sur. — Shut down 730 ft.
Republic Prod. Co.'s No. 1 Scott, 330 ft. N and E of SW Sec. 20, Blk. 17, S.P.R.R. Co. — Drlg. 270 ft.
Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. — Underreaming 10-in. casing 1,073 ft.; total depth 4,002 ft.
Spence et al's No. 1 Brown, 2,040 ft. E and 1,320 ft. S NW cor. Sec. 37, Blk. 25, T.&P. — Shut down 800 ft.
Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. — Cleaning out 4,048 ft.
Westyde Investment Co.'s No. 1 Elwood, C SW Sec. 33, Blk. 16, S.P.R.R. Sur. — Drlg. 140 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. — Drlg. 1,390 ft.
Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW Sec. 6b, Blk. 23, T.&P. Sur. — Drlg. 1,120 ft.

PECOS COUNTY

H. Adams 'No. 1 University, 1,650 ft. from N, 150 ft. from E Sec. 12, Blk. 17 — Location.
Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur. — Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.
Atlantic O. P. Co.'s No. 1 Trees, 330 ft. from N and 990 ft. from W line Sec. 108, Blk. 8, H.&G.N.R.R. Sur. — Shut down 1,305 ft.
M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur. — Top salt 1,090 ft.; total depth 1,647 ft.; top pay 1,618 ft.; made one 5-bbl. head oil; was shot; hole bridged; swabbed 15 bbls.; will pump.
H. R. Bell et al's No. 1 Gray, 150 ft. from S and 2,490 ft. from W line Sec. 593, G.C.&S.F.R.R. Sur. — Est. 200,000 ft. gas 1,250 ft.; drlg. 1,465 ft.; gas exhausted.
Cosby's No. 1 Smith, Sec. 24, Blk. 194, 1,650 ft. from N, 330 ft. from E, G.C.&S.F.R.R. Sur. — Location.
Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land — Total depth 1,320 ft.; 2,500,000 ft. gas.
Cowboy Evans' No. 1 Pecos Valley, 2,310 ft. from NW line, 990 ft. from SW line of Sec. 36, Blk. 3, H.&T.C. R.R. Sur. — Spudded and shut down.
Cromwell & Kimberlin's No. 1 Jackson, 2,490 ft. from NW line, 1,170 ft. from NE line Sec. 28, Blk. 3, H.&T.C.R.R. — Location.
Crowley's No. 1 Heiner, 2,400 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur. — Shut down 1,288 ft.
Clayton Williams' No. 1 Sanford, 160 ft. from NW line 1,150 ft. from SW line Sec. 55, Blk. 10, H.&G.N. — Drlg. 300 ft.
Doran & McGee's No. 1 Pecos Valley, Sec. 34, Blk. 3, H.&T.C. — Fishing 1,030 ft.
Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387 — Shut down 1,505 ft.
Gibson-Johnson's No. 1, 330 ft. from N, 990 ft. from E Sec. 3, Blk. 179 — Location.
Independent Oil & Gas Co.'s No. 1 Iowa Realty Trust Co., 2,310 ft. each way NE SE line Sec. 23, Blk. 10, H.&G.N.R.R. — Drlg. 80 ft.
Sam Kitts and others' No. 1 Sherbino, 330 ft. from N and 990 ft. from W line Sec. 52, Blk. C-4, G.C.&S.F. R.R. — Fishing 250 ft.
Marland Oil Co.'s No. 1 University, Sec. 10, Blk. 17, 1,620 ft. from N, 1,020 ft. from E — Location.
Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. — Moving in machine.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. — Shut down 1,442 ft.
McMan Oil & Gas Co.'s No. 6 Smith, C Sec. 25, Blk. 194, 2,127 ft. from N and 1,740 ft. from W — Drlg. 790 ft.
McMan Oil & Gas Co.'s No. 7 Smith, 660 ft. from N, 990 ft. from E Sec. 25, Blk. 194 — Location.
Moncrief et al's No. 1 Tippett, 1,980 ft. from S and 660 ft. from W lines of Sec. 46, Blk. 194, G.C.&S.F. Sur. — Drlg. 1,490 ft.; top salt 735 ft.
R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. — Drlg. 400 ft.
Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, H.&T.C. Sur. — 18,000,000 ft. gas 1,490-1,502 ft.; spraying salt water from behind 8¼-in. casing set at 1,180 ft.; shut down 1,502 ft.; 5 3/16-in. casing set on bottom with last joint perforated; 18,000,000 ft. gas; shut in.
Phillip Pet. Corp.'s No. 1 Bowser, 250 ft. from N and E Sec. 77, Blk. OW, G.C.&S.F.R.R. — Location.
Plymouth Oil Co.'s No. 2 Perry, Sec. 29, Blk. 178, 330 ft. from N and E cor. — Drlg. 1,763 ft.; top salt 1,060 ft.
Phillips Pet. Co.'s No. 1 Pryor, 440 ft. S and E of NW cor. Sec. 78, Blk. OW, T.M.R.R. Sur. — Top pay 1,345 ft.; drlg. 1,392 ft.; 400 ft. oil in hole.
Phillips Pet. Co.'s No. 2 Ramsey, 990 ft. S and 1,980 ft. W of NE cor. Sec. 17, Blk. 194, G.C.&S.F. Sur. — Drlg. 1,170 ft.
Rio Pecos' No. 2 Yates, 5,130 ft. from E, 510 ft. from S Sec. 543, Blk. 1 — Location.
T. G. Shaw's No. 1 Yates, Sec. 58, Blk. 1, I.&G.N.R.R. Sur. — Location.
B. J. Spikes' No. 1 George Brown — Show oil 1,180-90 ft.; drlg. 1,452
Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. — Shut down 1,200 ft.
Southern Crude O. P. Co.'s No. 1 Jackson T-139, Sec. 28, Blk. 3, 1,487 ft. from NE, 2,518 ft. from SE cor. — Location.
Talbot and others' No. 1 Unsicker, 150 ft. each way from NE and SE cor. line of Sec. 25, Blk. 10, H.&G.N. Sur. — Location.
Taylor Link Oil Co.'s No. 1 University, 330 ft. from S and E Sec. 30, Blk. 16, University — Drlg. 817 ft.
Tidal Oil Co.'s No. 1 University, 1,320 ft. from S and W lines of Sec. 16, Blk. 20, University Land — Drlg. 427 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 — Top lime 1,155 ft.; shut down 4,407 ft.
Transcontinental Oil Co.'s No. 2 University, C of SW SW Sec. 9, Blk. 17, University Land — Shut down 2,303 ft.

PRESIDIO COUNTY

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootie Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. — Set 8-in.; total depth 2,470 ft.; cleaning out.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land — U. R. 2,576 ft.
Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line Sec. 8, J. G. Robinson Sur. — Location.
Skelly Oil Co.'s No. 4 University, 2,310 ft. N and 990 ft. W of SE cor. Sec. 33, Blk. 8 — Top salt 1,270 ft.; drlg. 2,855 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. — Total depth 2,900 ft.; shut down
Earl Henby's No. 1 Brooks, 1,980 ft. N and 660 ft. W Sec. 16, Blk. 59 — Spudded and shut down 100 ft.
Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 — Hole full water 1,275 ft.; total depth 1,465 ft.
David R. Thompson's No. 1 A. A. Eddins — Fishing casing 5,658 ft.; underreaming 8¼-in. casing.
Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. — Top salt 1,725 ft.; hole full fluid 5,176 ft.; underreamed 6-in. cas-5,225 ft.; total depth 5,418 ft.; reduced hole 5,227 ft.
Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. — Shut down 1,500 ft. for repairs.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 — Shut down 1,350 ft.
Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE line Gray Carroll Sur. — Drlg. 625 ft.
Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 ft. S and W of NE cor. S half M. Salinas Sur. No. 20½ — Drlg. 2,700 ft.
Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur. — Drlg. 3,850 ft.
McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. — Shut down 1,185 ft.
Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 — Shut down 3,810 ft.
Pure Oil Co.'s No. 3 Giesecke, 11,656 ft. S and 1,369 ft. E of NW cor. Hughes — Drlg. 1,625 ft.
Pure Oil Co.'s No. 1 Russell, 367 ft. E and 12,231 ft. S of NW cor. Hughes Sur. No. 227 — Location.
Pure Oil Co.'s No. 2 Russell, 945 ft. E and 12,015 ft. S of NW cor. Sur. No. 227 — Location.
Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor. Lot 22, Domingo Diaz Sur. No. 532 — Temporarily abandoned.

SCHLEICHER COUNTY

Fort McKavet's No. 1 Tisdale, Sec. 1,499, River Section, 3,630 ft. from S, 150 ft. from W — Shut down 3,023 ft.
Interstate's No. 1 Whitten, 1,320 ft. from N and W Sec. 35, Blk. LL, T.C.R.R. Sur. — Shut down 3,540 ft.
Underwood's No. 1 Tisdale, 2,095 ft. from N and 1,185 ft. from E Sec. 74, Blk. LL — Spudded and shut down.

SCURRY COUNTY

Cottingham & Briscoe's No. 1 Truss, C SE Sec. 427, Blk. 97 — Location.
I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. — Spudded and shut down 300 ft.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. — Fishing 2,900 ft.
Texas-Canadian's No. 1 Moore, 1,320 ft. from S and W Sec. 379, Blk. 97 — Location.

The GUIBERSON SWAB KNOWS NO HALF WAY MEASURES

Fully Patented

We mean that literally. Every time a Guiberson Swab goes in the hole, it brings a "full measure" load to the surface. There's no beginning at the bottom with a full load and losing half of it before it reaches the top.

The pressure of a load of fluid works *with* the cups on a Guiberson Swab, pressing them firmly against the casing walls. The greater the pressure, the tighter the seal that is made. No fluid slips past the cups and back into the hole. Yet the cups are collapsible from below, allowing speedy passage while running in, with no danger of kinking wire lines. The cups are extremely flexible and are steered safely past all wrinkles and projections in the casing by imbedded guide wires. This reduces wear on cups and casing—while giving 100% efficiency in swabbing.

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STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. ... Show oil 1,296-98 ft. and 1,356-58 ft.; fishing 2,182 ft.; shut down 2,503 ft.

George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur. ... Set 12½-in. casing 830 ft.; set 8-in. casing 2,138 ft.; shut down 2,982 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Show gas 6,430 ft.; drlg. 6,635 ft.

L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. ... Set 15-in. casing 530 ft.; fsg. 2,440

Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. ... Est. 1,000,000 ft. gas from 4,640-45 ft.; drlg. 4,845 ft.

TAYLOR COUNTY

V. B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ... Shut down 3,415 ft.

Root Drlg. Co.'s No. 1 Martin, 990 ft. E and 1,650 ft. N of SW cor. Sec. 30, Blk. 19, T.&P.R.R. Sur. ... Drlg. 2,440 ft.

Wentz Oil Corp.'s No. 1 Armour, 275 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. ... Shut down 2,250 ft.

TERRELL COUNTY

Big-Bend Oil Co.'s No. 1 Barrett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ... Spudded and shut down.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.R.R. Sur. ... Drlg. 2,450 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. ... Drlg. 510 ft.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ... Cem. 6⅝-in. casing 3,986 ft.; drlg. 4,965 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ... Shut down 700 ft.

TERRY COUNTY

Kingsland O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ... Shut down 1,920 ft.

Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asylum Land ... Total depth 750 ft.; hole full sulphur water 750 ft.

UPTON COUNTY

Humble O. & R. Co.'s No. 11 Ricker, 1,320 ft. from NE cor. and 5,390 ft. from NW line Sec. 5, Denton Sur. A-127 ... Top pay 2,347 ft.; total depth 2,434 ft.; plugged back 2,420 ft. to shut off water; hole filled 1,500 ft. with oil in 3 days.

Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ... Top salt 815 ft.; top pay 2,275 ft.; swabbed 60 bbls. in 24 hrs.; total depth 2,335 ft.; to put on pump.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ... Drlg. 1,305 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ... Shut down 4,850 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. ... Shut down 2,450 ft.

Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. ... Drlg. 2,920 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y ... Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 3,760 ft.

WARD COUNTY

Atlantic & Delmar Co.'s No. 2 Hayzlett, 150 ft. each way from W cor. E Sec. 17, Blk. 5, H.&T.C. ... Hole full water 443 ft.; drlg. 1,835 ft.

Gulf Prod. Co.'s No. 2 Hutchins, 330 ft. N and E Sec. 7, Blk. O ... Top salt 1,240 ft.; total depth 1,260 ft.

Barstow Oil & Gas Co.'s No. 1 Gillespie, Sec. 50, Blk. 33 ... Spudded and shut down.

Gulf Prod. Co.'s No. 5 O'Brien, 330 ft. each way NW of SW Sec. 18, Blk. F, G.M.M.B.&A. Sur. ... Top salt 1,273 ft.; drlg. 2,060 ft.

Gulf Prod. Co.'s No. 1 Wristen, 216 ft. NW, 1,107 ft. SE Sec. 18, Blk. 5 ... Location.

J. H. L. Oil Co.'s No. 2 Hayzlett, 1,100 ft. from SW and 220 ft. from SE line Sec. 17, Blk. 5, H.&T.C. ... Top pay 2,430 ft.; total depth 2,490 ft.; 107 bbls. 24 hrs.; shot 40 qts. 2,431-56 ft.; casing collapsed; averaging 74 bbls. daily; cleaning out.

Kemper-Kimberlin's No. 1 Thompson, 1,470 ft. NE, 150 ft. NW Sec. 15, Blk. 5 ... Location.

E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. ... Total depth 966 ft.; junked hole.

Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1 ... Location.

WINKLER COUNTY

American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5 ... Cem. 12½-in. casing 170 ft.; top lime 2,599 ft.; top pay 2,731 ft.; 2,000 ft.; oil; increase 2,875 ft.; show water 2,928-31 ft.; shut down 2,945 ft.

Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 ... Cellar.

Gulf Prod. Co.'s No. 1 Daugherty, 330 ft. S and W of NW and W of Sec. 22, Blk. 26 ... Top lime 2,429 ft.; drlg. 2,530 ft.

Gulf Prod. Co.'s No. 1 Clapp, 330 ft. S and W Sec. 37, Blk. 26 ... Rigging up rotary.

Humble O. & R. Co.'s No. 12 Hendricks-C, 1,980 ft. N and 1,325 ft. E of SW cor. Sec. 10, Blk. B-12 ... Drlg. 310 ft.

Humble O. & R. Co.'s No. 1 Walton-A, 2,310 ft. N and 330 ft. E SW cor. Sec. 48, Blk. 26 ... Top salt 970 ft.; top lime 2,267 ft.; total depth 2,443 ft.

Kermit Dev. Co.'s No. 1 Carter, 640 ft. S, 2,227 ft. W Sec. 27, Blk. B-3 ... Shut down 400 ft. to cure title.

Magnolia Pet. Co.'s No. 2 Scarborough, 1,620 ft. N and 990 ft. W SE cor. Sec. 1, Blk. C-22 ... Drlg. 1,450 ft.

Prairie O. & G. Co.'s No. 2 Daugherty, 330 ft. S and 990 ft. E of NW cor. Sec. 16, Blk. 74 ... Top lime 2,756 ft.; top pay 2,890 ft.; swabbed 40 bbls. oil daily.

Prairie O. & G. Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22 ... Total depth 3,209 ft; top salt 1,400 ft.; set 8¼-in. casing 2,845 ft.; top pay 2,930 ft; swabbed 45 bbls. daily.; water; plugged back to 3,100 ft.; to put on pump.

Shell Pet. Co.'s No. 1 Leck, 990 ft. S and 1,650 ft. E of NW cor. Sec. 3, Blk. 74 ... Top lime 2,789 ft.; top pay 3,144 ft.; 1,900 ft. fluid in hole; shot 90 quarts 3,030-59 ft.; flowed 41 bbls. 10 hrs.

Shell Pet. Co.'s No. 6 Scarborough, 330 ft. N and W of SE cor. NW SE Sec. 1, Blk. C-22 ... Drlg. 1,960 ft.

Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 ... Top lime 2,636 ft.; show oil 3,024 ft.; hole full sulphur water 3,030-39 ft.; total depth 3,055 ft.; flowing 1,000 bbls. fluid, 99 per cent water; cementing 6-in.

Skelly Oil Co.'s No. 2 Leck, 2,310 ft. N and 330 ft. E SW cor. Sec. 22, Blk. 26 ... Cementing 8¼-in. casing 2,460 ft.

Southern Crude O. P. Co.'s No. 5 Hendricks T-67-2-D, 990 ft. from W, 2,310 ft. from S. Sec. 28, Blk. 26 ... Drlg. 353 ft.

Simms Pet. Co.'s No. 2 Seeley, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. ... Rotary rig.

Southern Crude O. P. Co.'s No. 2 Hendricks T-88-CX, Sec. 21, Blk. 26 ... Cementing 8¼-in. casing 2,482 ft.

Southern Crude O. P. Co.'s No. 3 Hendricks T-88-CX, 2,310 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26 ... Top lime 2,457 ft.; coring 2,467 ft.

Southern Crude O. P. Co.'s No. 7 Hendricks T-88-K, 1,320 ft. S and 1,650 ft. W of NE cor. Sec. 41, Blk. 26 ... Cementing 8¼-in. casing 2,643 ft.

Southern Crude O. P. Co.'s No. 6 Hendricks T-88-N, 1,320 ft. N and W of SE cor. Sec. 28, Blk. 26, School Land ... Total depth 2,743 ft.; sandy lime; flowing 25 bbls.

Southern Crude O. P. Co.'s No. 7 Hendricks T-88-N, 2,320 ft. N and 2,640 ft. W of SE cor. Sec. 28, Blk. 26 ... Top lime 2,546 ft.; total depth 2,590 ft.

Southern Crude O. P. Co.'s No. 3 Hendricks T-88-O, 440 ft. S, 330 ft. W of NE cor. Sec. 28, Blk. 26 ... Top lime 2,376 ft.; top pay 2,690 ft.; flowing 352 bbls. daily; total depth 2,830 ft.

Southern Crude O. P. Co.'s No. 4 Hendricks T-88-O, 1,320 ft. S and W of NE cor. Sec. 28, Blk. 26 ... Shut down 2,456 ft.; drlg. 2,535 ft.

Southern Crude O. P. Co.'s No. 2 Hendricks T-88-P, Sec. 28, Blk. 26 ... Drlg. 1,050 ft.

Southern Crude O. P. Co.'s No. 3 Hendricks T-88-R, 1,320 ft. N and E of SW Sec. 27, Blk. 26 ... Top lime 2,365; drlg. 2,630 ft.

Southern Crude O. P. Co.'s No. 8 Hendricks T-89-J, 440 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12 ... Cem. 8-in. casing 2,590 ft; drlg. 2,658 ft.

Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur. ... Shut down 4,011 ft.

Tidal Oil Co.'s No. 1 Scarborough, 330 ft. S and E of NW SE SE Sec. 1, Blk. C-22 ... Drlg. 2,770 ft.

PANHANDLE FIELDS

(Continued from Page 83)

an initial production of 3,214-380 feet of gas. House and others' No. 1 Fulfer was temporarily abandoned at 3,565 feet.

Jack County

Bryson Oil & Gas Co.'s No. 1 Daugherty-A was drilled to a total depth of 3,220 feet, topped the pay at 3,155-59 feet, was plugged back to 3,164 feet and had an initial production of 56 bbls.

Stephens County

Lone Star Gas Co.'s No. 1 Compton was drilled to a total depth of 4,183 feet, plugged back to 3,918 feet, shot with 150 quarts at 3,876-3,918 feet and was dry and abandoned. Texas Pacific Coal & Oil Co.'s No. 3 Pierce was drilled to a total depth of 2,010 feet, topped the pay at 1,985 feet, and had an initial production of 10 bbls. oil and 100,000 feet of gas. Lone Star Gas Co.'s No. 1 Brooks was drilled to a total depth of 3,928 feet, plugged back to 3,917 feet, topped the pay at 3,880-92 feet, was shot with 30 quarts at 3,880-92 feet and had an initial production of 50 bbls. oil and 1,000,000 feet of gas.

Shackelford County

Cranfill & Reynolds' No. 1 Moberly-B was drilled to a total depth of 1,040 feet, topped the pay at 1,034-39 feet and had an initial production of 24 bbls. on pump. Ritterbush's No. 1 Nail was dry and abandoned at 1,202 feet. Simms Petroleum Co.'s No. 10 Lones was drilled to a total depth of 768 feet, topped the pay at 762-65 feet and had an initial production of 20 bbls. on pump. The Texas Company's No. 1 Gillespie was dry and abandoned at 2,272 feet.

PANHANDLE COMPLETIONS

Week Ending June 1

Carson County

McIlroy Oil Co.'s No. 1 Lewis, located 330 feet south and east of NW cor. SW NE Section 115, Block 4, I.&G.N.R.R. Survey, was drilled to a total depth of 3,160 feet, topped the pay at 3,070-90 feet and had an initial production of 90 bbls. Ryan Oil Co.'s No. 2 Block was drilled to a total depth of 3,091 feet, shot with 210 quarts at 3,021-85 feet and had an initial production of 125 bbls. Spartan Oil Co.'s No. 1 Bednorz, located NW cor. E half NW Section 202, Block 3, I.&G.N.R.R. Survey, was drilled to a total depth of 3,393 feet, plugged back to 2,660 feet, made 50,000,000 feet of gas from 2,315-2,600 feet.

Gray County

McConnell Oil Co.'s No. 1 McConnell, located 330 feet from north and east lines of W half of NE of Section 65, Block 4, I.&G.N.R.R. Survey, location was abandoned. McMan Oil & Gas Co.'s No. 1 Saunders, located 330 feet north and east of SW cor. east 80 acres W half of E half J. G. Eustice Survey, was drilled to a total depth of 2,583 feet, topped the pay at 2,525-70 feet, had an initial production of 1,400 bbls. oil and 11,000,000 feet of gas. Sun Oil Co.'s No. 1 Purviance, 330 feet south and west NE W 80 acres, Section 61, Block B-2, H.&G.N.R.R. Survey, was drilled to a total depth of 2,914 feet, had show of oil at 2,867 feet and flowed 918 bbls. oil with 3,000,000 feet of gas. Travis and others' No. 2 Back, located 330 feet each way from NW cor. E half SE cor. Section 44, Block 25, H.&G.N.R.R. Survey, was drilled to a total depth of 2,625 feet, topped the pay at 2,545-60 feet, had an initial production of 135 bbls. with 8,000,000 feet of gas. The Texas Company's No. 1 Purviance and others was drilled to a total depth of 2,925 feet, had a show of oil and gas at 2,836-37 feet and at 2,855-65 feet with an initial production of 925 bbls. with 5,000,000 feet of gas.

Hutchinson County

Phillips Petroleum Corp.'s No. 4 Johnson-Pulaski, located 330 feet from north line and east line of W half of Mary Whitley Survey, was drilled to a total depth of 2,903 feet, topped the pay at 2,875-2,903 feet, swabbed 120 bbls. It was then shot with 30 quarts at 2,875-2,903 feet and shot a second time at 2,843-75 feet and had an initial production of 402 bbls. Its No. 5 Johnson Brothers (Florence), located 330 feet each way from south and east lines of E half Mary Whitley Survey, was drilled to a total depth of 2,943 feet, shot with 120 quarts at 2,880-2,943 feet and had an initial production of 150 bbls. Phillips Petroleum Corp.'s No. 2 Johnson Brothers was drilled to a total depth of 2,875 feet, topped the pay at 2,870 feet and had an initial production of 567 bbls.

Moore County

Phillips Petroleum Corp.'s No. 1 Burnett, located 330 feet each way from NE cor. NE Section 192, Block 3-T, T.&N.O. R.R. Survey, was drilled to a total depth of 3,582 feet, plugged back to 3,200 feet, made 23,000,000 feet of gas from 2,980-3,045 feet. Phillips Petroleum Corp.'s No. 3 Sneed-A, located 1,600 feet south and 430 feet west of NW cor. J. N. Proctor Survey, was drilled to a total depth of 3,139 feet, swabbed 74 bbls. fluid, 10 per cent water, from 3,126-31 feet, and had an initial production of 30 bbls. daily.

Wheeler County

The Texas Company's No. 2 Gordon was drilled to a total depth of 1,884 feet, topped the pay at 1,880-84 feet and had an initial production of 30,000,000 feet of gas.

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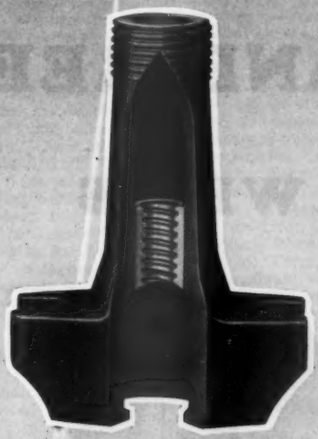

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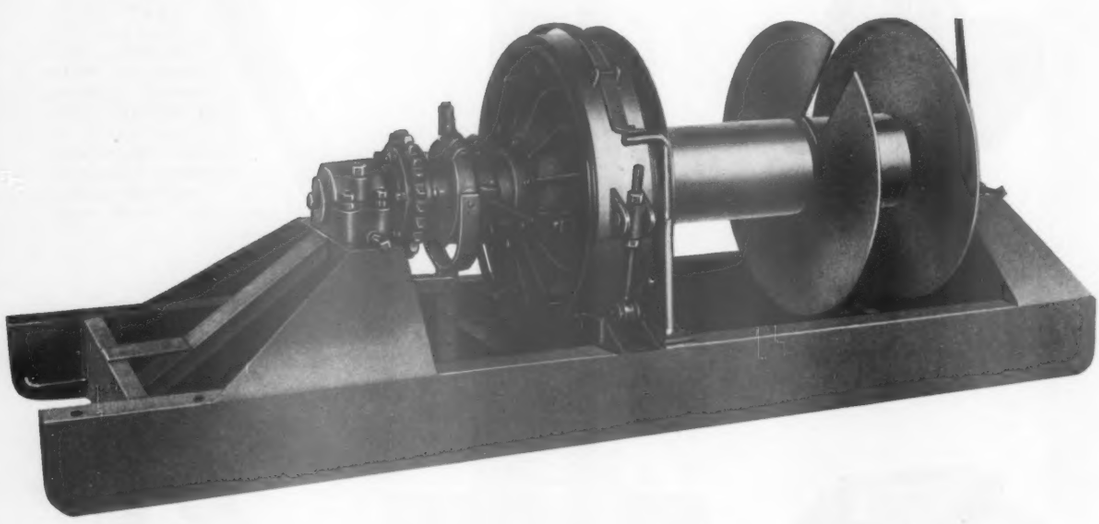

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COFFEYVILLE, KANSAS

Request Bulletin 90

CANADIAN FIELDS

(Continued from Page 69)

years. British Petroleums' No. 3-B and Edmonton-Wainwright Oils' No. 1 are delivering crude to the local refinery, and Wainwell Oils' No. 3 is also reported on a producing basis. Wainwell Oils' No. 1, LSD 9, Section 36-44-7w4, which last year got heavy crude production, has been deepened to 2,215 feet, encountering a considerable gas flow. British-Wainwright Oils' No. 2, LSD 13, Section 22-45-6w4, stands cemented at 2,238 feet after coring 6 feet into the sands, and will be brought in this month. Wainwright Petroleums' No. 1, LSD 6, Section 30-45-6w4 has spudded in with a rotary outfit; and contracts are being let for three additional tests. Arrangements are being made to finance a series of 15 tests within a year.

Turner Valley

In the Turner Valley Field, southwest of Calgary, a number of tests are drilling in the deep lime, several of which should get production this month. New McDougall-Segur Oil Co.'s No. 2, LSD 14, Section 12-20-3w5, which made 85 bbls. a day from the deep lime at 5,385 feet, is being deepened with 4-inch tools for larger production. New McDougall-Segur's No. 1, same LSD, which has been making a small light crude production at 3,257 feet, will start deepening to the lime horizon as soon as No. 2 is finished. Illinois-Alberta Oils' No. 2, same LSD, is drilling 135 feet in the lime at 3,685 feet depth, with additional spurts of wet gas.

Spooner Oils' No. 2, Section 24-20-3w5, is working with the diamond bit in a hard formation, 175 feet in the lime, at 5,250 feet, and making around 8,000,000 feet of wet gas, with a crude naphtha recovery around 85 bbls. It is being deepened for larger production. This well, on the southern fringe of the North Turner Valley area, is the second deep lime producer in the northern section of the field.

In the central section, Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is making around 400 bbls. a day, with some leakage.

In the south end, Calmont's No. 2, LSD 11, Section 20-19-2w5, on the Dallas lease, is reported to have spudded in with a rotary outfit. Calmont's Nos. 4 and 5, same section, have derricks up.

Blew Out Tools

Home Oil Co.'s No. 2, LSD 14, Section 20-19-2w5, got a big wet gas production 122 feet in the lime at 5,465 feet, and on being deepened blew the diamond drill tools out of the hole. Initial production of 10,000,000 feet increased to 15,000,000 feet, with a crude naphtha recovery in six hours of 170 bbls. While the test has not yet reached the main producing horizon which Home's No. 1 tapped at 172 feet in the lime, the production is as large as No. 1's initial production, and is apparently increasing. Home's No. 1, LSD 10, same section, established a new high record of 900 bbls. crude naphtha in 24 hours.

Mayland-Royalite

Mayland Oil Co.'s No. 2, formerly Royalite's No. 25, LSD 8, Section 17-19-2w5, has spudded in, Imperial Oil, Ltd., handling the drilling. Mayland's No. 3 has been spotted in the same section about 4 miles west of No. 2, and is reported working on derrick. Mayland's No. 1, LSD 10, same section, is reported changing to rotary outfit, after drilling to 5,400 feet, just above the lime, with standard tools. The well has a fair production of light crude.

Hargal Oils, Ltd., has derrick up on acreage close to Home Oil Co.'s No. 1 producer. Drilling will be under supervision of Imperial Oil, Ltd., which will take production. Famous Oils, Ltd., has located its No. 1 in LSD 3, Section 3-19-2w5, and No. 2 in LSD 10, Section 6-20-3w5. Lowery Petroleums' No. 1, NW, Section 17-19-2w5, is reported starting work; and operations will be under supervision of Imperial Oil, Ltd.

Alberta Petroleum Consolidated's No. 1, LSD 5, Section 20-19-2w5, is reported working on derrick. As soon as No. 1 is rigged up, No. 2 will be started in the same LSD. Commonwealth Petroleum's No. 2, LSD 7, Section 9-19-2w5, has derrick up. H. S. Diem, superintendent of the Noble-Olsen Drilling Co. of Tulsa, has charge of the contract. Merland Oils' No. 1, Section 13-27-2w5, is rigging up. Miracle Oils' No. 1, LSD 11, Section 4-19-2w5, is reported working on derrick.

In the north end of the Turner Valley, Anaconda Oils' No. 1, LSD 6, Section 22-20-3w5, has cellar dug. Vimy Oils' No. 1, LSD 7, Section 14-20-3w5, is reported rigging up. Vanalta Oils, Section 34-30-3w5, is reported digging cellar.

New Companies

Hallmark Petroleums, Ltd., recently incorporated with office at Calgary, has secured two 30-acre tracts in the north-central section and has located No. 1 about 1,000 yards northwest of United Oils' No. 4. Directors include John Keillor, E. M. Boyd, Frank G. Davies, C. H. Reed, John Boyd, J. H. Talling and Russell V. Johnson, geologist. Invaders Petroleum, Ltd., another new incorporation, is locating its No. 1 test offsetting Foothills Oil & Gas Co.'s No. 1 producer. Cable tools will be used. Officers are: President, W. S. Henderson; vice president, Byron Harmon; directors, Frank Webster, Fay Becker, S. G. Carscallen. Dolphin Petroleums, Ltd., has been organized with J. C. Dallas as president and managing director to drill on a 40-acre tract in the north end of the field.

Turner Valley Exploration Co. has been incorporated to develop 240 acres in the north end of the field sub-leased from Turner Valley Oil Co. Turner Valley Oil Co. is a lease-holding company, part of whose acreage, in SW, Section 3-21-3w5, is now being developed by Freehold Oil Corp. The original Turner Valley Co. will hold 300,000 shares in the newly-organized company in exchange for its acreage.

Shareholders of United Oils, Ltd., of Calgary have approved distribution of $1,000,000 received from Home Oil Co. for acreage on the basis of $4 for each share under the original capitalization prior to the recent 10-for-1 split. Officers elected were: President, F. J. Green; vice president, F. M. Compton; secretary, W. M. Connacher; directors, R. A. Brown, William Arden. United Oils' No. 4, LSD 2, Section 24-30-3w5, which has some light crude production at 5,300 feet, will likely be continued to the deep lime horizon.

New Operations

Structure Oil & Gas Co.'s No. 1, LSD 7, Section 31-19-2w5, is rigging up. Structure's No. 2, LSD 6, Section 12-20-3w5, will start work at once. Sunlight Oils, LSD 2, Section 4-19-2w5, is working on derrick.

On the New Black Diamond structure, a westerly extension of the Turner Valley, Outwest Petroleums' No. 1, LSD 5, Section 35-19-3w5, has spudded in, with Union Drilling Co. handling the contract. Vanberta Oils, Ltd., of Vancouver, has sub-leased part of the Outwest acreage for a second test in this summer.

On the New Black Diamond structure, Cameron Petroleums, Ltd., is digging cellar for No. 1, LSD 8, Section 36-20-3w5. On the Waite Valley structure, Richfield Petroleum's No. 1, Section 35-20-3w5, has spudded in. Gibraltar Oils, Ltd., of Calgary, will start a test this summer on the same structure. Herron Petroleum, Ltd., is hauling lumber for derrick on the Elbow River, 40 miles west of Calgary.

Milk River District

In the Milk River district, Commonwealth Petroleum will do additional core-drilling on the Blood Reserve before starting a commercial test. Vanalta Oils, Ltd., has equipment at Coutts for a test on Alberta Petroleum Consolidated Oils' acreage. West of Coutts, Sunset Oils, Ltd., of Vancouver, British Columbia, will drill on acreage of Alberta Petroleum Consolidated Oils, on the Red Coulee structure.

Morley Reserve

On the Morley Reserve, Gold Coin Oils' No. 2 has spudded in.

On the Sinclair structure, Banner Oils' No. 1, LSD 6, Section 34-17-3w5, is hauling equipment from Okotoks. Pacalta Oils, Ltd., of Vancouver has located No. 1 test in LSD 7, Section 28-19-2w5, on the Highwood structure. Golden Ray Oils, Ltd., of Toronto has sub-leased 160 acres in Waite Valley from New Valley Oil Co. of Calgary for one-eighth royalty and stock consideration and will drill a test in Section 19-20-4w5.

High River Oilfields' No. 1, LSD 6, Section 34-18-29w4, is reported spudding in.

Cypress Hills

In Cypress Hills district, southeastern Alberta, Eagle Butte Oil Co.'s No. 2 location is being made, and it is expected to spud in this month. Development in the Cypress Hills area dates back to 1927, when, following a report by Dr. W. S. Dyer of the Geological Survey, the Cypress syndicate blanketed 51,000 acres. Cypress Oil Co. was later organized by Toronto interests to take over the syndicate holdings. Eagle Butte Oil Co. was formed by Clarence E. Roth of Independence, Kans., to take over a contract made by Mr. Roth with the Cypress Oil Co. for the drilling of two wells. In consideration of these two wells, the Cypress Oil Co. undertook to transfer to Mr. Roth leases covering 10,000 acres checkerboarded over its area, subject to one-eighth royalty to the Cypress company.

Eagle Butte's No. 1 got a gas flow at 2,500 feet, and a second and larger flow, estimated 30,000,000 feet a day, at 3,340 feet, where drilling halted for the winter. At this depth it definitely proved the field for large gas production; and is now going deeper for oil. Tentative arrangements have been made for marketing the gas to Saskatchewan.

In Manitoba

In Manitoba, development work is being undertaken by a Brandon syndicate in the Melita area, where it is hoped to develop gas production to supply Brandon, Winnipeg and other communities. Melita district is in southwestern Manitoba. A Brandon syndicate headed by Thomas J. Jamieson, secured J. O. Williams of Calgary to report on a field south of Melita.

Ontario

In Kent County, Ontario, Southern Ontario Gas Co.'s test on the Jack Dawson farm, lake front, Romney Township, finished in the Tilbury sand at 1,370 feet with a small gas production, around 70,000 feet a day. A shot increased this to 250,000 feet. The rig has been moved to the J. F. Dawson farm, adjoining, where another well has spudded in. Kervin & Dawson of Merlin are handling the drilling contract, which covers a series of 10 additional wells to be drilled in the Tilbury gas field this summer.

CALIFORNIA FIELDS

(Continued from Page 72)

check of development work indicates the probable completion of several potential producers soon. The Associated, Marland and Standard all have projects rotating in the oil sand with the outlook favorable for early production. The Marland Oil Co.'s No. 1 Selover, which came in flowing at the rate of 1,000 bbls. per day, went to water a short time after completion due to mechanical trouble. This well has been recemented and should be on production again within a few days as it is in proven territory. Several new wells are also nearing completion in the Rosecrans Field, where the Barnsdall and Union have three wells in the pay. Only a limited amount of drilling has been undertaken at Rosecrans during the past few years, as the Barnsdall and Union are conserving their resources until a more opportune time. It is interesting to note that 11 wells are still producing under a natural flow in this field with 39 more on compressors and an additional 50 producers on the beam. The Dominguez Field, which likewise reflects a curtailment of production and drilling operations and progressive conservation work involving the storage of surplus natural gas, has 25 wells producing under a natural flow, 15 on compressors and 30 pumpers.

Richfield

The Richfield district has shown a consistent increase in development work after a dormancy of several years and, although this area is free from competitive drilling, new work can be anticipated from time to time due to operations of the Continental Oil Co., Superior Oil Co. and independent operators. The Continental and Superior are each running four strings of tools and should complete one or more new wells within 60 days. The Standard Oil Co. is running three strings of tools in the Montebello Field, where deep zone exploration is expected to prove lower productive horizons. Only a small amount of development work has been undertaken in this district for several years, recent drilling being limited to extension work of the Standard Oil Co. in the extreme western end.

Midway-Sunset

The Republic Petroleum successfully finished its No. 34 in the Midway-Sunset area and this new well located in Section 8-32-23 came in under a natural flow doing 1,520 bbls. or 22.3 gravity oil and 400,000 feet of wet gas daily from 3,300 feet. The Chanslor-Canfield Midway Oil Co. picked up the Republic sand in its No. 6, located on adjoining acreage in Section 7-32-23, and should be tanking oil soon. The Shell has reached 5,144 feet in its No. 1-A Perris, spudded in several months ago for the purpose of picking up a new productive horizon which the Union Oil Co. encountered in its No. 1 Western Petroleum in Section 27-32-23. The Standard's No. 1 Mascot, being drilled for the same purpose, is standing cemented at 4,320 feet. This work is several miles south of the area under development by the Republic Petroleum and Chanslor-Canfield Midway Oil Co.

Out in the Maricopa Flats, in another section of the Midway-Sunset Field, the Signal Oil & Gas Co. picked up the pay in No. 3 Sheehan and a string of 10-inch has been landed at 2,384 feet. This well is closer to the outcropping than No. 2 Sheehan, which came in several weeks ago flowing at the rate of 1,975 bbls. per day from 3,242 feet, and is expected to register much smaller production. No. 4 Sheehan, another drilling project north of No. 2 Sheehan, on the other hand, should result in larger production. The North American Consolidated has instituted an exteisive development campaign, including drilling projects on the Bronco lease in Section 8-11-23, Lincoln lease in Section 18-11-34 and Sunset Extension in Section 8-11-23. The company is running three strings of tools but is rigging up three more wells for early work.

The Standard, which has extensive fee holdings in this area and is expected to undertake considerable drilling if subsequent developments warrant, has No. 1 Graham in Section 7-11-23 almost completely rigged up and should be spudded in some time within a few days. The Doyle Petroleum Co. spudded in No. 1 Weir in Section 8-11-23 and preparations are being made by the Birch Oil Co. and the Union Oil Co. to follow a similar procedure shortly. No. 1 Havenstrite of the California Western Oil Co. in Section 17-11-23, No. 1 Leutholtz of the Rio Grande in Section 22-11-23 and the North American's No. 1 Bronco and No. 1 Sunset Extension are all rotating below the 2,000 foot level and will probably be in a position to make a bid for production within 30 days. Two new wells were finished in the Mount Poso Field but both were subsequently shut in. These new acquisitions were No. 14 Glide of the Petroleum Securities in Section 21-27-28, which showed an initial of 170 bbls. daily from 1,820 feet, and No. 1 Knapp of the Shell, good for 120 bbls. per day from 1,477 feet. The Richfield Oil Co. finished No. 29 out in the West Front area of the Kern River Field and it registered an initial of 205 bbls. per day from 2,355 feet.

Ventura Avenue

The Associated successfully finished No. 12-A Hartman, a new well in the Ventura Avenue Field, and although the initial production, 350 bbls. daily, did not equal the output of previous completions, it will probably build up. This

new producer, rather well out on the structure in the northern part of the field, was carried to 6,919 feet and is flowing under a pressure of 900 pounds. The Associated is running 11 strings of tools. The Shell should also chalk up a number of new producers as Nos. 29, 30 and 31 on the Gosnell lease are all below 7,000 feet and Nos. 35 and 36 on the Taylor property below 6,200 feet. No. 5 Willett of the Pacific Western Oil Co., the deepest well drilled in the Ventura Avenue Field since discovery, failed to result in commercial production when put on a test at 8,025 feet. This project, in the southern part of the field, was finished with a string of 8⅝-inch landed at 6,190 feet. It came in flowing salt water and will consequently be plugged back by stages. Although it has apparently drilled entirely through the productive horizon no wells located on the apex of the Ventura Avenue structure have yet reached the bottom of the deep zone. The M. K. & T. Oil Co., which is developing the Foster and Percy properties immediately south of the Orton lease of the Petroleum Securities, is expected to finish two wells soon as No. 2 Foster at 7,050 feet and No. 1 Percy at 7,550 feet are both rotating in the pay. With the Richfield Oil Co. making preparations to drill the cement out of No. 1 Hobson, a deep test botomed at 7,449 feet, the Rincon Field will become the cynosure of operators because of the importance which this well will have on future development. No. 1 Hobson of the Richfield is the deepest project drilled in the Rincon district and the company's field staff is confident the oil sand logged will prove commercially productive if the water trouble which has caused considerable inconvenience has been effectively excluded. The General Petroleum recompleted No. 3-A Hobson in this district doing 78 bbls. of clean 28.2 gravity oil from 6,651 feet and the Chanslor-Canfield Midway Oil Co. will probably bring in No. 9-B Hobson shortly, although completion of the latter project will be held in abeyance pending the outcome of the Richfield Oil Co.'s deep test.

LA.-ARK. WILDCATS

(Continued from Page 61)

veloped hot salt water. Thereafter the hole stood as temporarily abandoned until recently when they plugged back to 3,522 feet to cut off the water and made more hole. Curry is reported offering several thousand acres for another test but it is doubtful if one will be made any time soon.

Arkansas Natural Gas Corp. recorded a failure in its Johnson County, Arkansas, development, when No. 2 Bynum in Section 12-10-24, was written off as a salt water hole, total depth 3,125 feet. So far as available records go this is the company's second failure in northwest Arkansas in a total of nine wells drilled, the other failure being No. 1 Parks, Section 26-8-24, Logan County, dry at 4,690 feet.

Northwest Arkansas

Northwest Arkansas is drawing more and more attention from major companies operating in that district though as yet none of them has shown any signs of following Oklahoma's activities in getting in in any way. Independent Oil & Gas Co. drilling No. 1 Banks & Teague, Section 6-16-27, Madison County, cemented 6⅝-inch casing at 2,168 feet and is drilling white lime, and is adding to the several thousand acres it already has blocked around the well. Fuel for the test is drawn through bradenhead from a shallow thin gas sand at around 600 feet. This is the same sand C. H. Willoughby had in No. 1 Jones in Section 34-16-30, Washington County, which he is straightreaming to 1,342 feet where he topped a sandy lime on which he will set second string. The well is making a little gas but whether from this 600-foot stuff or from another sand at 936 feet is not determined. Lincoln Leasholding Co. is drilling at 500 feet on No. 1 Lincoln Townsite, Section 30-15-32, Washington County.

Phillips Petroleum Co. and Craver and Green are reported having taken 1,200 acres in Townships 13-27 and 13-28, Madison County, on which they were due to start a well by June 1 but found titles so faulty that operations are indefinitely suspended. Whether this 1,200 acres is a joint proposition or whether Phillips Petroleum Co. and Craver & Green have separate blocks of the same size is not made clear in information obtained here. Probably the Phillips Co. has it all, and the block is larger than 1,200 acres. Scotty Taylor also is reported collecting a block in Townships 13-28 and 13-29, in the southeast corner of Washington County, and another block just south of Huntsville in Madison County which would place it in Township 16-26.

C. O. Moore is stringing 10-inch pipe for a gas line from the Alma Field in Crawford County to serve Winslow, Fayettville, Springdale, Rogers, and Bentonville.

Will Resume Test

Pine Prairie Oil & Gas Co. financed largely by Florida capital, which was ready to give up when the well, No. 1 Carter in Section 33-10-6, Lincoln County, Arkansas, failed to develop any oil or gas after going to 2,124 feet, has taken on a new lease of life through the efforts of the individual who interested the Floridians and is reported arranging to start work again and make more hole with a total depth of 2,124 feet as a starting point.

Stricken From the Record

J. O. Moore's No. 1 Union Sawmill in Section 11-18-12, Union Parish, was cancelled as a salt water hole at 3,304 feet, a number of wells carried on the report for months and months without any progress being shown, are dropped with this report. They are: Arkmo Oil & Gas Co.'s No. 1 Gossett, Section 29-21-8, Clay County, Arkansas, last listed as shut down October 19, 1928, total depth 719 feet; Gold Creek Oil & Gas Co.'s No. 1 Stermer, Section 17-4n-13, Faulkner County, last report shut down at 3,782 feet, November 11, 1928; Mull Moon Petroleum Co.'s No. 1 Hugue, Section 24-10-4w, Jackson County, last reported April 28, 1928, shut down at 500 feet; Cotton Plant Oil Trust, No. 2 James, Section 8-5-2w, Woodruff County, shut down, total depth 260 feet; F. N. Henderson and others' No. 1 Askew, Section 17-16-4w, Hinds County, Mississippi, location abandoned, to drill No. 1 Dornbush, Section 8-18-5, as an El Dorado Oil Co. operation; M. W. Ellis and others' No. 1 E. T. Roseborough, E. Carroll survey, Harrison County, Texas, abandoned at 1,440 feet.

Slick-Prairie Block

T. B. Slick's completion of a block of approximately 36,000 acres in Claiborne Parish, Townships 21 and 22, Ranges 4 and 5, was reported last week. Interest in the block was heightened when it became known that the Prairie Oil & Gas Co. has a half interest in the property. Prairie is reported to have had a half interest in the original block of a little more than half the 36,000 acres, and to have taken a like interest in the remainder, as soon as the trade was closed, through its recent trade with Slick. The leases are long term with no drilling obligation so whether any activity will follow in the near future is something to guess at.

El Dorado Chief Oil Co. is reported having a derrick up in Section 27-20-7, Claiborne Parish, for another deep hole a mile or so northwest of the deep hole they recently abandoned.

NORTH LOUISIANA

Bienville Parish

W. G. Gray's No. 1 Snyder, Section 15-16-6, is drilling at 1,900 feet.

Bossier Parish

Corbett and others have shut down No. 1 Murff, Section 18-17-11, at 990 feet. Fullilove Drilling Co. had a show of gas at 885 feet on No. 1 Fullilove, Section 11-17-12, and is drilling at 920 feet. Woodmansee and others drilled 372 feet further on after a drill stem test at 3,160 feet on No. 1 Bollinger, Section 9-22-11, and shut down at 3,532 feet.

Caddo Parish

Lide & Davidson set 6-inch casing at 2,400 feet in No. 1 Glassell, Section 1-19-15, total depth 2,452 feet. Forty-two feet of broken formation at bottom. Humble Oil & Refining Co. and R. W. Norton's No. 1 Fortner, Section 32-21-16, was dry on drill stem test at 4,102 feet and is drilling hard sand at 4,112 feet.

DeSoto Parish

Becker and others' No. 1 Tull, Section 23-12-15, had a show of gas at 1,246 feet and is drilling at 1,400 feet. Benedum & Trees Oil Co.'s No. 2 State, a new well 1,700 feet south and 1,350 feet west NE cor., Section 22-14-12, set 12½-inch at 255 feet, had a show of oil and gas at 1,732 feet and is drilling at 2,600 feet. Magnolia Petroleum Co. got a showing for a 100-bbl. producer in No. 1 Clements, Section 28-12-11, and set casing on top of the sand at 2,604 feet, total depth 2,612 feet.

Franklin Parish

Ruston Drilling Co.'s No. 1 West Virginia, Section 23-15-7, topped the Wilcox at 1,440 feet and is drilling shale at 2,365 feet.

Jackson Parish

George O. Baird, drilling No. 1 Tremont in Section 24-16-1w, topped the Urania pay at 1,300 feet and is on a hard rock at 1,504 feet.

Natchitoches Parish

Robeline Oil & Gas Co.'s No. 1 Cassady, Section 7-8-9, is drilling shale at 3,230 feet.

Ouachita Parish

Farish and Russell drilled plug from 6-inch cemented at 3,600 feet on No. 1 School fee, Section 16-16-4, tested salt water and are drilling at 3,673 feet.

Red River Parish

Eylers Oil Co.'s No. 1 Chaffraix, Section 30-12-10, is drilling broken chalk rock at 1,452 feet.

Richland Parish

Austin & McDonald's No. 1 Millsaps, Section 17-17-6, is drilling gumbo at 1,535 feet; No. 2 Millsaps, Section 17-17-6, is shut down at 2,695 feet waiting for drill stem. Northern Louisiana Natural Gas Co. set 12-inch casing at 207 feet on No. 1 Boykin, Section 20-17-6, and 8-inch at 901 feet. Palmer Corp.'s No. 1 Miles, Section 11-17-6, is drilling shale at 2,291 feet.

Sabine Parish

R. L. Gay, trustee, has derrick pattern on location for No. 4 Bowman-Hicks Lumber Co., 200 feet north and 500 feet west SE cor. NW SE, Section 14-7-14. No. 1 Long-Bell, Section 26-8-14, is drilling at 950 feet. A. H. Tarver is drilling in the Blossom sand, topped at 2,409 feet, at 2,770 feet on No. 1 Long-Bell, Section 29-8-13.

Union Parish

The Texas Company is drilling at around 200 feet on No. 1 Fuller, Section 9-21-2w.

ARKANSAS

Ashley County

Atlantic Oil Producing Co. and others' No. 1 Young, Section 20-15-7, is drilling at 2,895 feet.

Bradley County

Phillips Petroleum Co. set 73 feet of 12½-inch casing on No. 1 Kline, Section 28-16-12, and is drilling on a rock at 1,175 feet.

Columbia County

Arpeco Syndicate of Arkansas made location 550 feet south and west NE cor., Section 11-20-23, on the Louisiana line, for No. 1 Dennis, set 10-inch at 125 feet and is drilling at 400 feet. T. R. Brown has rig up on No. 1 Spencer, Section 18-18-22. Helena Oil & Gas Co.'s No. 1 Pickler, Section 19-19-22, is shut down for repairs to rig, total depth 2,762 feet.

Logan County

Arkansas Natural Gas Co. cemented a cavity at 2,175 feet on No. 1 Hanna, Section 26-7-23, total depth 2,285 feet.

Madison County

Independent Oil & Gas Co. cemented 6⅝-inch pipe at 2,168 feet on No. 1 Banks & Teague, Section 6-16-27.

Ouachita County

Arkansas Drilling Co.'s No. 1 Bearden, formerly carried as No. 1 Crowley, Section 27-15-19, is drilling gumbo at 2,781 feet and No. 1 J. S. Bearden is a derrick 275 feet south and west NE cor. SE NW of the same section. Copenhaver and others made location in the SW cor. SW SE, Section 2-15-17, for No. 1 Warnick. Lohman and others' No. 1 Fogle is a derrick in the SW cor. NE SW, Section 18-14-16. Phillips Petroleum Co. and others' No. 1 Eagle Mills, Section 11-12-16, is on a rock at 1,242 feet with no pipe in the hole. It started drilling May 23 and is a unit test. Timberlake and others'. No. 1 Wright, Section 25-14-18, topped the red beds at 2,625 feet and is coring at 2,714 feet.

Union County

W. M. Coates' No. 1 McDuffie, Section 32-19-17, had salt water from 2,846-56 feet and is reaming to bottom. Johnson Summer Oil Co. has derrick up for No. 1 Cargile in the SW cor. SE NW, Section 4-18-13, Urbana district.

Washington County

C. H. Willoughby is reaming to the top of a sandy lime at 1,342 feet on No. 1 Jones, Section 34-16-30. Lincoln Leaseholding Co.'s No. 1 Lincoln, Section 30-15-32, is drilling around 500 feet.

MISSISSIPPI

Claiborne County

Ben W. White pulled the derrick in on No. 1 Old Hen, also carried as No. 1 Shannon, Section 36-10-4, and is rebuilding. Total depth of the hole is 2,004 feet.

Hinds County

Hennessee and others' No. 1 Riverside, Section 23-16-5, is shut down at 1,100 feet waiting orders.

Lauderdale County

Meridian Oil & Gas Co.'s No. 1 Hauser, Section 33-8-18, also carried as F. X. Gowans' No. 1 Hauser, is shut down at 1,560 feet.

Monroe County

Amory Natural Gas Co. is drilling plug from 6-inch casing cemented at 2,368 feet on No. 1 Carter, Section 7-17-13. Arkansas Natural Gas Co. got part of the lost 5⅞-inch casing out of No. 1 Rye, Section 22-15-17, and is fishing for the remainder, total depth 3,300 feet.

Rankin County

Lion Oil Refining Co.'s No. 1 Midterfeldt, Section 2-4n-1e, is drilling sandy shale and lime at 4,000 feet.

Yalobusha County

Philps Brothers' No. 1 James, Section 20-11-5, is shut down at 2,408 feet waiting report on a core showing oil.

ALABAMA

Sumpter County

B. W. Bates and others are reaming to set 6-inch to cut off a water flow at 400 feet on the third of a group of wells within 1,000 feet of each other, location and lease not reported.

WEST TENNESSEE

Decatur County

Chester County Oil & &Gas Co. set 6-inch casing at 1,003 feet on No. 1 Montgomery, 7 miles southwest of Decatursville, drilled into a water sand at 1,035 feet, pulled the pipe and is reaming to reset, total depth 1,040 feet. Standard Oil Co. is still fishing for junk in No. 1 Wyatt, 3 miles south of Decatursville, total depth 1,210 feet.

LOUISIANA-ARKANSAS

(Continued from Page 61)

gasser, 1,105 pounds initial rock pressure at 3,052 feet and, deepening, is drilling red shale at 3,450 feet.

Caddo Parish

Greenwood—Eastern Carbon Co.'s No. 4 Bryson, Section 8-17-16, which staged a blowout of about 5,000,000 feet of gas two weeks ago, lubricated and set liner, tested salt water and gas and is plugging back to 2,330 feet, total depth 2,773 feet.

Dixie—Gold & Sklar are rigged up to drill No. 1 Henderson, 330 feet south and east NW cor. SW NE, Section 17-19-14. Gulf Refining Co.'s No. 1 Oden, Section 18-19-14, is drilling gummy shale at 2,270 feet; No. 2 had shale and gumbo with streaks of oil sand from 2,306 feet to 2,400 feet. Ohio Oil Co.'s No. 1 Hunter, Section 17-19-14, is in chalk at 1,650 feet. Standard Oil Co. got 360 feet of oil and mud in 40 minutes on drill stem test of No. 2 Hunter, Section 8-19-14, and cemented 6¼-inch casing at 2,387 feet, total depth 2,416 feet; No. 4 Hunter, Section 17-19-14, is drilling shale at 2,160 feet; No. 1 Oden, Section 18-19-

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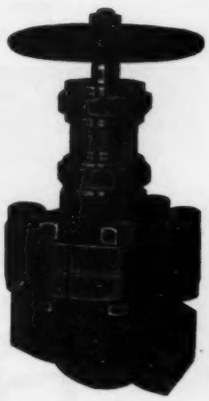

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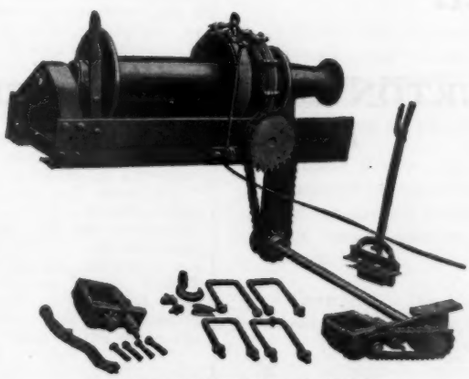

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14, had sand showing oil and streaks of shale from 2,372 to 2,405 feet, and cemented 6-inch on top.

Oil City—W. D. Chew made location 10 feet west of No. 1 fee, Section 33-21-16, for No. 1-B fee, and is drilling at 1,050 feet. Gulf Refining Co.'s No. 16-A Levee Board, Section 34-21-16, is coring broken sand at 1,806 feet. Magnolia Petroleum Co. is drilling lime and shale at 3,109 feet on No. 18 Doan-Thigpen, Section 6-20-15.

Pine Island—Dixie Oil Co. tested No. 92 Dillon, Section 13-21-15, again at 6,126 feet and got the same amount of gas as on the previous test, 192,000 feet, at 1,000 pounds, and is drilling sand and shell at 6,129 feet; No. 28 Dillon, in the same section, set 42 feet of 10-inch and is drilling at 1,432 feet; No. 3 Slattery, Section 21-21-15, is swedging 6-inch at 1,397 feet, total depth 1,607 feet.

LaSalle Parish

Urania—O. W. Clark has derrick up in the SE SW, Section 23-10-1e, for No. 1 Tullos. Kinney, Hardtner & Rendall are coring No. 1 Kinney, Section 7-10-2e, at 625 feet. Philp and others set 100 feet of 10-inch on No. 1 Urania, Section 1-10-1e, and are running drill stem test at 400 feet. Rendall and others plugged back on No. 3 Urania, Section 1-10-1e, lost the bailer and have a fishing job, total depth 675 feet.

Monroe District

Morehouse Parish—J. S. Herkness set 146 feet of 12-inch on No. 6 Banks, Section 17-20-5, and is drilling at 800 feet. Interstate Natural Gas Co. got derrick up on No. 2 Flemming, formerly carried as No. 2 Finley, Section 15-20-4. Southern Carbon Co.'s No. 10 Tensas, Section 2-20-4, is drilling at 1,680 feet.

Ouachita Parish—G. E. Jordan is drilling No. 1 Anding, Section 18-18-5, at 2,240 feet and has location 1,201 feet north and 1,815 feet west SE cor. NE, Section 2-18-4, for No. 1 Rea & Green. Magnolia Petroleum Co. is rigging up to drill No. 1 fee, Section 2-18-3, and made the following locations: No. 2 fee, 660 feet north and west SE cor., Section 15-19-5; No. 3 fee, 660 feet north and east SW cor., Section 11-19-5; and No. 4 U. S., 660 feet north and east SW cor., SE NW, Section 20-19-5; No. 2 U. S., Section 30-19-5, set 8⅛-inch pipe at 2,175 feet. Nemours Corp. cemented 6-inch at 2,132 feet on No. 3 Frierson, Section 18-19-4. Ouachita Natural Gas Co.'s No. 2 Sandidge Patton, Section 11-20-4, cemented 6½-inch at 2,142 feet. Peerless Carbon Co. cemented 6-inch at 2,082 feet on No. 5 Moore, Section 51-20-4. United Oil & Gas Co.'s No. 4 Guthrie, Section 49-20-4, is drilling at 1,600 feet. West Virginia Oil & Gas Co. cemented 8¼-inch at 840 feet and 6-inch at 2,175 feet on No. 7 West Virginia, Section 5-18-4.

Union Parish—Natural Gas Producing Co. cemented 6-inch at 2,120 feet on No. 2 Hale, Section 14-21-3. Palmer Corp.'s No. 1 Downey, Section 12-20-3, is drilling at 150 feet and No. 2 in Section 21-21-3, has rig up.

Red River Parish

J. H. Askew's No. 1 Lockett, Section 32-13-10, is shut down at 1,630 feet. Gulf Refining Co. is drilling sand rock at 1,830 feet on No. 1 Kennedy, Section 24-3-11, and No. 38 Robinson, Section 25-13-11, is waiting on standard rig with 60 feet of oil in the hole, total depth 2,557 feet.

Richland Parish

W. C. Feazel made location 660 feet south and 330 feet east NW cor. SW, Section 33-16-6, for No. 1 McCoy. O. E. Hodge's No. 1 W. T. Sartor, 660 feet east and 578 feet north SW cor., Section 16-16-6, set 201 feet of 12-inch and is drilling at 300 feet. S. R. Humble's No. 1 Etheridge, Section 28-17-6, cemented 6-inch at 2,291 feet. International Gas Products Co. set 201 feet of 12-inch and 826 feet of 8-inch on No. 1 Kate Humble, Section 35-16-6, and is drilling at 1,928 feet. Magnolia Petroleum Co. is drilling No. 2 McCoy, Section 29-16-6, at 1,060 feet and cemented 8⅛-inch at 2,300 feet on No. 2 Noble, Section 36-16-5. M. L. Meredith made location 1,980 feet south and 990 feet west NE cor., Section 15-16-6, for No. 1 Holdness. Palmer Corp.'s No. 1 Hardwick is a location 3,790 feet west and 660 feet north SE cor., Section 16-17-6; No. 1 Jones is a location 1,980 feet south and 660 feet NW cor., Section 22-17-6; No. 1 Rhymes, 3,320 feet west and 660 feet south NE cor., Section 21-17-6, has derrick up and No. 1 Whiteen is a location 1,992 feet west and 660 feet south NE cor., Section 21-17-6. Southern Carbon Co. set 6-inch at 2,288 feet on No. 1 Tegola, Section 4-15-6, and set 185 feet of 12-inch on No. 1-B Tegola in Section 5-15-6, and is drilling at 700 feet.

Sabine Parish

Pleasant Hill—Arkansas Natural Gas Corp.'s No. 13 Logan, Section 33-10-12, is waiting on standard rig to pump with 250 feet of oil in the hole, total depth 3,300 feet.

Webster Parish

Cotton Valley—Louisiana Oil Refining Corp. topped the deep gas at 4,584 feet on No. 3 Nelson, Section 28-21-10, set perforated liner and is bailing to test, total depth 4,603 feet. Magnolia Petroleum Co. is bailing No. 1 Ura Cox, Section 23-21-10, for a test, total depth 4,690 feet; No. 1 McCook & Hibbler, Section 22-21-10, cored red shale at 5,693 feet. Ohio Oil Co.'s No. 43 Bodcaw, Section 24-21-10, is in chalk at 2,267 feet. Palmer Corp. is drilling lime at 2,827 feet on No. 5 Tillman, Section 27-21-10.

ARKANSAS

Ouachita County

Phillips Petroleum Co. cemented 6⅝-inch casing at 1,954 feet on No. 1 Scott, Section 34-15-15, total depth 1,955 feet.

Union County

Champagnolle—Bailey & Trimble set 100 feet of 12-inch and are drilling at 768 feet on No. 1 El Dorado Realty Co., Section 7-17-13. Gann and others' No. 1 Doss, Section 10-17-14, is drilling at 2,315 feet. H. L. Hunt's No. 7 Gregory, Section 10-17-14, made a drill stem test at 2,829-37 feet and got a show of oil. Lion Oil Refining Co.'s No. 1 El Dorado Realty Co., Section 7-17-13, is drilling lime at 2,817 feet. Ohio Oil Co.'s No. 2 Adams, Section 7-17-13, is drilling plug from 6⅝-inch cemented at 2,995 feet, total depth 3,022 feet; No. 1 Nash in the same section set 171 feet of 10-inch and is drilling at 1,400 feet; No. 1 E. Raulston, Section 12-17-14, tested 7 fourbles of oil from sand at 3,009-14 feet and cemented 6⅝-inch at 3,009 feet. Oilwell Corp.'s No. 3-C Perdue, Section 9-17-14, is drilling at 2,500 feet. Pure Oil Co. set 10-inch pipe at 205 feet and is drilling at 1,860 feet on No. 2 Nash, Section 7-17-13. Rovenger Oil Corp. No. 2-B Perdue, Section 9-17-14, second hole, is coring at 2,770 feet. Rushing and others' No. 1 Lynn, Section 7-17-13, set 10-inch at 150 feet and is drilling at 855 feet.

El Dorado—Gulf Refining Co.'s No. 1 Gaddy, Section 30-17-14, deepening from 2,859 feet, where it tested approximately 50,000,000 feet of gas with a spray of oil, cored red gumbo at 3,561-91 feet. Weisinger and others' No. 7 Goodwin, Section 31-17-15, is drilling at 1,850 feet.

Smackover—Lovett and others' No. 1 Goodwin & Stone, Section 3-16-16, which was shut down at 2,715 feet two months ago, drilled to 2,785 feet and shut down again to repair the rig. Simmons and others' No. 1 Green, Section 3-16-16, previously reported abandoned at 2,335 feet as a salt water hole after standing for six months, came to life again and is drilling at 2,512 feet.

EAST TEXAS

Harrison County

Eureka Natural Gas Co.'s No. 4 Vaughn, W. R. Anderson Survey, set 81 feet of 8-inch casing for surface string and is drilling at 500 feet. H. D. McRitchie and others' No. 1 Crofts, F. L. Merriweather Survey, was dry at 1,873 feet and again at 1,885 feet on drill stem tests, and is drilling at 1,890 feet.

Panola County

Adams and Walker are arranging for a drill stem test on No. 1 Adams, James Matthews Survey, at 2,692 feet. Calatex Oil & Gas Co. is drilling hard lime at

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2,656 feet on No. 4 Adams, J. Womack Survey. Magnolia Petroleum Co. cemented 5¾-inch casing at 2,766 feet on No. 3 T. C. Adams, James Matthews Survey; No. 4 Ella Baker, B. C. Jordan Survey, is bailing to test, total depth 2,280 feet; No. 3 Lula Fletcher, B. C. Jordan Survey, cored shale and lime at 2,896 feet. The Texas Company cemented 6¼-inch casing at 960 feet on No. 10-A T. C. Adams, Thomas Cox Survey. D. Thomason set 42 feet of 10-inch and is drilling at 2,260 feet on No. 13 Crenshaw, B. C. Jordan Survey.

GULF COAST FIELDS

(Continued from Page 67)

No. 3 Berwick, Orange, pumping 10 bbls. net, 3,067 feet; Brownie-Babbett Oil Co.'s No. 8 McLean, Orange, pumping 29 bbls. net, 4,024 feet; East Batson Oil Co.'s No. 14 Donoho & Cashen, Batson, pumping 4 bbls. net oil, 527 feet; Sun Oil Co.'s No. 44 Mitchell, Liberty, pumping 40 bbls. net oil, 1,248 feet, to which depth it was plugged from 1,292 feet after testing salt water; C. M. Crotty's No. 7 Lilardo, Edgerly, pumping 35 bbls. net oil, 2,530 feet.

Deep Tests

Two deep tests on the east side of Barbers Hill, Mills Bennett Production Co.'s No. 2 Smith and No. 1 Hamman-Armstrong, were due to have come in Friday but due to the fact that there is no access nor communication with the field no information was available late Saturday as to the outcome of these two tests. Officials who went to the field for the testing of the wells are marooned there.

Humble Oil & Refining Co. failed to extend the Raccoon Field 9,000 feet to the south in its No. 1-D Ernest Grawunder, Boatright Survey, which was abandoned as dry at 3,823 feet. Moody Corp.'s No. 4 Hume on the north side of Pierce Junction was another abandonment of interest. It struck salt and was quit at a total depth of 3,508 feet. Gulf Refining Co. also again failed in an attempt to find deep production off its Sorrento Dome in Ascension Parish by abandoning its No. 14 United Land Co. at 3,939 feet. The test went into a cavity. Gulf Production Co. abandoned No. 8 Smith, High Island, testing salt water at 2,984 feet.

SOUTHWEST WILDCATS

(Continued from Page 64)

tion. The Texas Company's Darst is 4 miles northeast of Rogers & Heap.'s No. 1 Sophie Hensel, and the Magnolia's No. 1 Imhoff is about 2 miles southeast of the center of the line between the other two wells. These three wells were drilled several years ago. The logs seem to indicate there is a fault line and that the first two tests named were too far to the northwest and on the downthrow side of the fault while the Magnolia test on the upthrow side was too far away from the fault to expect production. Conner's test will be interesting for the reason that the area has been in the minds of oil men and many believe there should be a pool in there somewhere.

Waelder Area

Joe Bruner has set casing at 2,712 feet in No. 1 Miller, 1 mile north of Waelder and will wait till roads get better and weather clears up before he resumes. Information on the test is that when it resumes a test will be made. Within a few weeks a number of tests have started or been announced in that territory. Linderman Brothers, 1 mile west of Bruner, is said to have a showing of oil. Finnell & Elam, 3 miles north, Pritchard, 3 miles west. Hoffman has a location 4 miles north and Teat of Fort Worth a location 2 miles east of Hoffman. There are six tests in the Waelder territory where two months ago there was nothing being done.

Staples Area

Humble Oil & Refining Co. and Mid-Kansas Oil & Gas Co. have each started to wildcat in the Staples area in northern Gaudalupe County. Magnolia drilled some tests in that area a few years ago. There is no doubt a fault line is there somewhere. Humble is down 200 feet on a test in the townsite of Staples and Mid-Kansas is still a location.

Old Mexico

Lloyd Petroleum Co. has leased 3,500,000 acres on the Old Mexico side of the Rio Grande and extending from a point opposite Eagle Pass to a point opposite Del Rio and is moving a rig across the river at Eagle Pass to drill the first of several tests.

Blanco County

In Blanco County Robert Rodson is waiting on a string of 5⅞-inch casing. His last string is set at 416 feet and total depth of the No. 1 Glasscock is 962 feet and he has water trouble. It was shot recently and is said to show some oil but also water. He will set 5⅞-inch at 960 feet and then deepen and possibly shoot again.

Bexar County

Balcones Oil Corp.'s No. 1 Jackel in the extreme southwestern part of Bexar County has had three minor showings of gas, one at 312 feet, one at 510 feet and another at 700 feet. The last was so strong that the crew stopped to set surface casing for fear of trouble. The test is the first drilled by the Balcones Oil Corp. which is composed of Galveston men and was organized for the purpose of operating in Southwest Texas. Lloyd L. Bender, geologist, made the location and worked up the block and is on the lease to watch operations.

Starr County

Ohio Oil Co.'s No. 1 Bass, Porcion 76, Block 71, is drilling. U. S. Oil & Gas Co.'s No. 1 Kelsey, Porcion 76, Block 11, located 1,500 feet north line, 500 feet west line, is standing at 900 feet. The Texas Company's No. 1 V. C. de Guerra, Porcion 68, Share 92, located 600 feet east line, 6,280 feet south line, is drilling at 2,868 feet.

Webb County

G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet east line, 150 feet south line. L. W. Nelson's No. 1 Moglia, Survey 672, 150 feet east line, 2,584 feet south line, at 2,580 feet, testing. Usher Carson's No. 2 Benavides, Survey 1,613, Block 11, 150 feet north and west lines, is standing at 1,005 feet.

Zapata County

William Muchelroy, Jr., No. 1 Trevino, Survey 412, Block 25, tested gas at 1,295-1,300 feet, setting casing. National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4, is in hard rock at 615 feet. John Pappas' No. 1 Cuellar, Porcion 33-34-35, Block 5, 333 feet northeast lines, 194 feet southeast lines, is drilling at 1,350 feet. Buck & Coursey's No. 1 Garza, Block 47, 150 feet northwest lines, 150 feet northeast lines, is location.

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B, located 300 feet northeast line, 600 feet southeast line, is drilling at 2,000 feet.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate is drilling at 2,567 feet. Gulf Production Co.'s No. 2 W. N. Bell, Riley Survey, is location west central part of lease. Harper & Mitchell's No. 1 Riley Mitchell, adjoining Howell Oil Corp.'s test is building derrick.

Howell Oil Corp.'s No. 1 F. Wichman, 150 feet east and south lines, is running line to the river. E. W. Ogden's No. 2 M. M. Call, Stephen F. Austin Survey, located 50 yards west of No. 1, is drilling at 2,760 feet.

Bexar County

Balcones Oil Corp.'s No. 1 F. A. Jackle, Alexander Bailey No. 184 Survey, 300 feet north and west lines, is drilling 200 feet good limestone. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, 300 feet north of the No. 1 at 4,458, fishing. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Navarro No. 5 Survey, 180 feet west of center of east line, at 1,597 feet is running 4-inch casing to make test. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet east line, 1,500 feet south line of farm, at 1,198 feet is standing. J. Morgan Russell's No. 1 G. A. C. Halff, located Lot 5, Block 8, G. A. C. Halff Subdivision, Park

FISHER

The keenest "petroleum engineering" minds today are greatly concerned with market research—simplified practice—elimination of waste—more and profitable yields from crude—employment of automatic devices—and greater dependence on sensitive controls as applied to problems of producing and refining. These things are necessary if profits are to be increased by means of reduced manufacturing costs.

More than in any other field of industry—improved efficiency made possible by engineering progress holds out to refinery operators possibilities of wider margins of profit. These can be secured on relatively small investments for new equipment in modern plants or in the rebuilding of old ones. In both instances it has been proven that greater economy and efficiency has resulted where refinery engineers have utilized to the fullest extent the highly specialized experience of specific equipment manufacturers.

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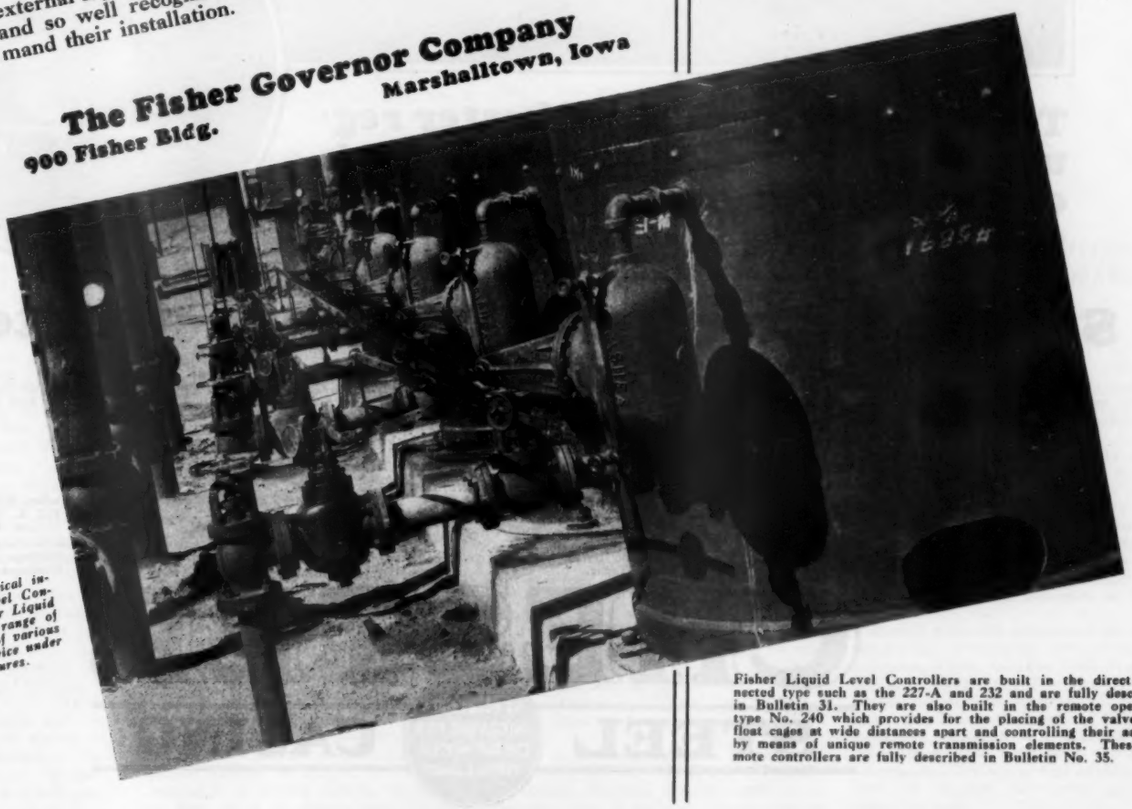


Illustrating one of the many typical installations of Fisher Liquid Level Controllers Type No. 227-A. Fisher Liquid Level Controllers have a wide range of usefulness and are constructed of various materials adapting them for service under all pressures and temperatures.

Fisher Liquid Level Controllers
Ball Bearing Type No. 232

(Patented Sept. 14, 1926)

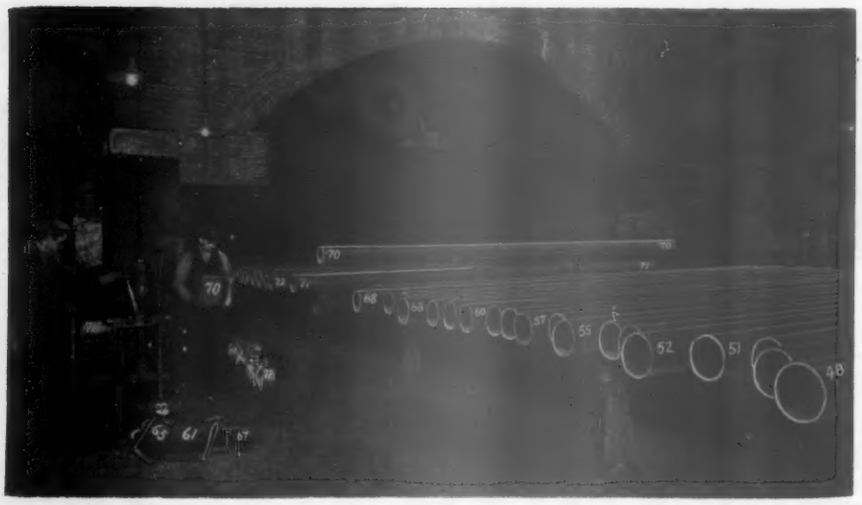
As a leading manufacturer of Automatic Specialties, The Fisher Governor Company presents this patented Ball Bearing Type of Liquid Level Controller as another new and original development. Our experience in building the majority of the liquid level controllers installed and in use today, has been advantageously used in the design and development of this device. The approval and acceptance of the Type No. 232 by leading engineers and its satisfactory performance in service has shown it to be worthy of our efforts and entitled to a place in the famous FISHER line.

Ball bearings of both the thrust and radial types are used in this controller to reduce the friction to an absolute minimum. In addition to reducing the friction, these bearings keep the rotating stems in perfect alignment. By eliminating the friction, it is possible to utilize all of the power developed by the float for operating the lever valve. Besides the bearings used with the float cage stem or shaft, similar bearings are used with the rotating stem of the lever valve. The bearings absorb the unbalanced pressure thrust on the two stems and permit their frictionless rotary movement. Until our development of this design, it was not possible to secure such positive control and operation as is now obtained with the Type No. 232. Standard greasing connections, felt washers, and external construction provide these bearings with suitable lubrication and protection from grit, rust, water, and corrosion. To meet all existing service conditions, we are able to furnish several styles of bearing assemblies and construction. These styles consist of two internal bearings, one internal bearing, one internal and one external bearing, one external bearing, and two external bearings.

The float cages and lever valves are built suitable for gas, hot or cold oil, steam, hot or cold water, and other fluids, and for a range of working pressures from 125 lbs. to 400 lbs. With proper trimmings and floats for maximum temperatures to 750° F. and for corrosive service.

A complete description of the Type No. 232 Fisher Liquid Level Controller is contained in Bulletin 32—write for a copy.

Fisher Liquid Level Controllers are built in the direct connected type such as the 227-A and 232 and are fully described in Bulletin 31. They are also built in the remote operated type No. 240 which provides for the placing of the valve and float cages at wide distances apart and controlling their actions by means of unique remote transmission elements. These remote controllers are fully described in Bulletin No. 35.



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Chester also makes all classes of Genuine Wrought Iron Tubular Goods

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STEEL CASING

Addition, is spudded in. B. L. Raborn's No. 1 Engelmann, John James Survey No. 73, located 300 feet south line of survey, 600 feet east line of survey, is standing at 1,715 feet.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet north line, 660 feet east line, at 214 feet is shut down. Robert A. Rodson's No. 1 Glasscock, W. M. McDonald Survey No. 50, located 150 feet west of center of east survey, at 962 feet is standing; Forbes & Winans are making location on block adjoining Johnson City.

Brooks County

A. W. Dinn's No. 1 Salado, B-5, La Mestena Survey, center Block 5, 2,734 acres, is location. Houston Oil Co. of Texas' No. 1 Lassiter, Survey 69, Block 11, located 330 feet south and east lines, is moving in derrick. Milam Drilling Co.'s No. 2 Riley Allen, Block 89, is drilling at 890 feet.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, located 910 varas north, 5 degrees 30 minutes west of N cor. of John C. Post Survey, is drilling at 2,748 feet.

Caldwell County

John T. Callahan and others' No. 1 W. Ellison, House Survey, located 750 feet east line and 150 feet south line, has derrick up. Magnolia Petroleum Co.'s No. 1 H. M. Lockman, Guadalupe College Survey, located 150 feet south and west lines, is drilling at 1,915 feet. Russell's No. 1 Hill, McCullough Survey, is standing at 547 feet. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, is moving in bigger rig at 1,320 feet.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, Block V-8, located 1,050 feet west line and 150 feet south line, is drilling at 1,550 feet.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon League No. 5, located about 250 varas to north line and a little west of center, at 2,364 feet.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, northwest corner, is drilling at 600 feet. Joe Bruner's No. 1 Miller, Richard Heath Survey, located 3,040 feet north line, 200 feet east line, at 2,712 feet, set and cemented casing. Crown Petroleum Co.'s No. 1 Mrs. Hattenbach, James Jones Survey, 900 feet east line, 200 feet south line, is at 1,900 feet, drilling. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, east central part of lease, is shut down at 5,212 feet. Finnell & Elam's No. 1 J. F. Robinson, J. Liverpool Survey, 5,558 feet from west and 2,640 feet south lines, is shut down awaiting for fuel oil. Linderman Brothers' No. 1 F. H. Frampton, Richard Heath Survey, located 21,206 feet north line of Creek, 1,930 feet east line of farm, rigged up to run night and day held up by heavy rains. W. G. Malone's No. 1 D. G. Stanton, J. M. Salimas Survey, located 375 feet southwest lines, 1,275 feet northwest lines, is shut down. Pritchard's No. 1 J. Lamm, located 3½ miles from Waelder, held up by heavy rains. Frank Sorrell's No. 2 Wilkerson, located 100 feet west of No. 1, at 174 feet, had good showing before going into salt water.

Guadalupe County

W. E. Clark's No. 1, M. Miller Survey, location made and contract let. A. G. Kifer's No. 1 B. B. Dix, Ira Nash Survey, located 610 feet north of road, 320 feet from east line, is standing at 1,050 feet. Grayburg Oil Co.'s No. 2 Sophie Haensel is location. Magnolia Petroleum Co.'s No. 1 Ed Adams, S. Highsmith Survey, located 150 feet from the center of the southwest line, is at 2,340 feet, drilling. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, located 600 feet southeast of C. N. White's No. 1 Gib Springs, at 2,624 feet, approximate total depth. Core shows oil. Will core again before making a drill stem test. T. H. Poole's No. 1 Woehler, John King Survey, located 310 feet north line of farm, 210 feet east line of farm, is standing at 2,404 feet. Tidal Oil Co.'s No. 1, Williamson Survey, is location. L. W. Conner and others' No. 1 William Weinaug, Robert Hall Survey, located 150 feet out of southwest corner, has derrick up and moving in machinery.

Jackson County

The Texas Company's No. 1 Lawrence, at 3,000 feet washing hole, has not reached bottom.

Karnes County

Hurador Oil Co.'s No. 1 W. E. Porter, located 800 feet south of north line, 250 feet west of east line at 1,543 feet, is drilling. Scott and others' No. 1 Ruckman, located 4½ miles northwest of Runge and east of San Antonio River, 2,000 feet northwest of southeast line, 1,800 feet southwest of northeast line, is at 1,250 feet, drilling.

Kendall County

C. W. Gould and others' No. 1 A. J. McCrocklin, 6 miles southeast of Sisterdale spudded in.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schreiner is location. L. R. Page and others' No. 1, Real Survey, Block 15, is drilling at 1,040 feet. It had 200 feet of Trinity sand; driller estimates log is running 211 feet high.

Kimble County

Carl L. Bryant's No. 1 C. E. Lambert, is spudding in. H. A. McLean's No. 1 R. F. Cannon, Section 741, located 330 feet south and east lines, is at 500 feet, drilling. J. B. Lindsay's No. 1 G. C. Anderson, Section 167, B. Huiger Survey, located 1,320 feet north and east lines, is at 100 feet, setting 15½-inch surface casing.

Kinney County

Lloyd Oil Co.'s No. 1 G. B. Moore, Survey No. 117, S. A. Maverick, located 1,320 feet south of center of north line at 1,000 feet, shut down in Del Rio. Mardon Oil Co.'s No. 1 Jim Clamp, John Winters Survey No. 346, located 5,360 feet west line, 5,675 feet south line of survey, is shut down at 2,540 feet, showing oil.

LaSalle County

J. G. Nix's No. 1 Coleman, Survey 68, Block 4, located 150 feet north line, 500 feet west line, is rigging up.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio Ranch, A. Rivos Survey, located northeast corner, is at 1,320 feet, total depth. Rycade Oil Co.'s No. 3 Chittim, Section 116, Block 7, is drilling at 3,627 feet. No. 4 Chittim, Section 104, Block 7, is drilling at 1,900 feet. No. 4 Sullivan, Section 112, Block 7, is down 1,300 feet, drilling.

Medina County

Donaldson Oil Co.'s No. 2 Adams, Joseph Hillemeyer Survey, located 1,000 feet northeast of No. 1, is location. Lynch and others' No. 1 Mott is standing at 580 feet. Rawdon and Hughes and others have taken over F. M. Cline's No. 1 Benedele, Survey 593, and resumed drilling at 815 feet; No. 1 A. L. Haegelin, Joseph Barnhart Survey, drilling; No. 2 Benedele, Survey 593, located 75 feet north of No. 1 at 937 feet, is standing. Cecil Switzer's No. 1 Zerr, at 3,500 feet, fishing. W. W. Woodworth's No. 1 Reinhart, J. Hall Survey, located 450 feet south and east lines, is reaming. Zigzag Oil Co.'s No. 1, San Antonion Subdivision Irrigated Farms, Inc., 300 feet west line, 1,496 feet south line, 4 miles northwest of Devine, is drilling.

Milam County

J. M. Burkhead's No. 1 C. Weigmann, A. Pollard Survey, 1,075 feet north line, 450 feet west line, spudded in and shut down. E. L. Chapman's No. 1 J. M. Gilchrist, J. J. Acosta Survey, located 150 feet north and west lines, is at 1,650 feet, drilling; No. 1, located on 1,400-acre block, 4½ miles northwest of Rogers-Heep, is location. H. E. Elliott and J. L. Minahan's No. 1 J. C. Moore, located 1,000 feet north of discovery well, is drilling at 815 feet. Groneman Brothers' No. 1 Dornhoefer is down 2,580 feet, drilling. Rogers & Heep's No. 1 J. B. Duncan, J. J. Acosta Survey, located 1,800 feet south of north line, 750 feet east of west line, at 1,830 feet, tested dry.

McMullen County

Natt Holman's No. 1 Shiner, Henry M. Brewer Survey, located 7,515 feet south of Nueces River, 3,084 feet west of Survey, is standing at 790 feet.

Nueces County

R. A. Thompson's No. 1 Bluntzer, Block 3, is standing at 3,507 feet. R. & G. Corp.'s No. 1 Emily Perkins, W. W. Wright Survey, located 150 feet west line, 1,920 feet south line, is standing at 3,510 feet. No. 1 Roberts is location. No. 1 Ragland is standing at 3,003 feet. Nueces River Basin Development Co.'s No. 1 F. C. Allen, G. Farrier Survey, 1,596 feet south line, 474 feet west line, is drilling at 3,232 feet. F. P. Zoch's No. 1 H. B. Baldwin, Block 21, J. C. Russell Survey, 150 feet north and east lines, is at 2,399 feet waiting to drill, delayed by heavy rains.

Refugio County

Blanco Creek Development Co.'s No. 1 St. John, J. Scott Survey, located 708 feet northwest lines, 3,074 feet northeast lines, is drilling at 3,354 feet.

San Patricio County

Houston Gulf Gas Co.'s No. 1 Welder, 3 miles east of Welder, north of Sinton, is running surface casing. George B. Pickett's No. 1 Whitworth, NW NW, Section 60, at 3,250 feet, is in sand, coring.

Victoria County

Humble Oil & Refining Co.'s No. 1-A Kohutek, S.A.&M.G. No. 5 Survey, located 1,945 feet southwest lines, 900 feet northwest lines, is location. No. 1 G. Knape, Section 6, L.R.R. Co., is location. No. 1 G. F. Oliver, J. H. Poindexter Survey, located 2,489 feet southeast lines, 3,023 feet northwest lines, at 176 feet setting surface casing. No. 3-A Jay J. Welder, D.L.&C. Survey, located 1,634 feet southeast lines, 736 feet southwest lines, is drilling below 1,000 feet.

Zavala County

Tritex Oil Co.'s No. 1 Clay Burns, located 2 miles northwest of gas well on West ranch, is drilling at 780 feet. No. 4 West is at 1,000 feet, fishing. No. 6 West, located 1,000 feet west of No. 2, is drilling at 725 feet. No. 1 Childress, in townsite of La Pryor, is drilling at 1,095 feet.

MICHIGAN FIELDS

(Continued from Page 70)

feet. The well is now drilling to the Dundee. Both wells are near Hesperia.

The Melrose Oil & Gas Co.'s No. 1 Woodward and Hatch, SE SE, Section 5-12-12, Brooks Township, Newaygo County, was dry in the Dundee and is shut down at 3,100 feet.

The Muskegon Oil Corp. and associated companies completed a second test in Oceana County on the F. Burmeister lease, SE NE, Section 34-14n-18w, Benona Township. It was completed as a flowing water well at 630 feet.

The Muskegon Oil Corp. and associated company (Oceana Exploration Co.) have started a new structure test on the V. J. Boone property, SE SE, Section 3-16-17, Weare Township, near Pentwater. C. J. Sipple has moved in and is building a rig for a new wildcat on land owned by the Iroquois Trust Co., of Chicago, SE SE Section 35-13-17, Grant Township, 300 feet north of the Muskegon County line. Mr. Sipple has a second rig on the way.

Mount Pleasant Field

Two good producers and a new dry hole were completed in the Mount Pleasant-Midland Field in Midland and Isabella Counties.

Sias Oil & Gas Co.'s No. 1 Keeler-McClintic, NW SW, Section 1-14n-3w, Chippewa Township, Isabella County, 1 mile north of production. It came in making 15 bbls. an hour or about 350 bbls. a day in the Dundee at 3,550-63 feet. The top of the Dundee was encountered at 3,517 feet.

The same company's No. 1 Kneeland, SW SW, Section 7-14n-2w, Greendale Township, Midland County, just across the east line of Isabella County, topped the Dundee at 3,518 feet and at 3,552-59 feet flowed at the initial rate of 40 bbls. an hour or almost 1,000 bbls. a day.

The Pure Oil Co.'s No. 1 Converse, NE NW, Section 28-14n-2w, Greendale Township, Midland County, was reported to have had a small show of oil quickly drowned out by bottom salt water.

Two new locations were reported: J. O. Spracklin's No. 1 Foster, NE NW, Section 15-14n-3w, Chippewa Township, Isabella County, and R. W. Gallagher, trustee's No. 1 Shepard, NE NE, Section 23-14n-3w, Chippewa Township, Isabella County.

Proration Committee

Colin C. Rae, former district supervisor for the United Geological Survey in Oklahoma, has been named to represent the Michigan conservation department on a committee of three to work out an oil proration plan for the Muskegon Field. Hale B. Soyster, supervisor of oil and gas at Muskogee, Okla., will represent the United States Geological Survey on the committee and Charles H. Caswell, vice president of the Lima Oil Corp., has been asked to represent the Muskegon producers.

Mr. Rae, who has been with the Skelly Oil Co. for the past year, will be supervisor of oil and gas conservation in any proration agreement adopted.

EAST CENTRAL TEXAS WILDCATS ABANDONED

By Nell Williams

CORSICANA, Tex., June 3.—Work in the East Central Texas division the past week was entirely routine. Two wildcats were abandoned but one was a geological test. The latter tests were Donoho & Smith's No. 1 Oliver, Limestone County, which was dry at 3,206 feet, and Pure Oil Co.'s No. 1 Brannon, J. Goodman Survey, Van Zandt County, one of a series of shallow tests drilled in Van Zandt and Smith counties by the Pure Oil Co. for geological information. In Freestone County, Hoosier and associates' No. 1 Naussbaum, S. A. Sweet Survey, made a drill stem test in a sand at 3,280 feet but showed 22 joints of salt water. It will be deepened.

Daily average production of East Central Texas fields for the week ending June 1 was:

	Bbls.
Boggy Creek	2,644
Cedar Creek	135
Currie	418
Mexia	5,509
Minerva	662
Nigger Creek	340
Powell	8,147
Richland	380
Thrall	34
Wortham	1,270
Total	19,539
Total previous week	19,934
Decrease	395

WAY ASSUMES DUTIES AS OIL SHOW MANAGER

William B. Way, manager of the International Petroleum Exposition, has arrived from Pittsburgh and is in charge of affairs at the exposition office, 124 West Third Street, Tulsa. He found the assignment of exhibit spaces well advanced and the building expansion for the year planned.

Work will now begin on the exposition program, Mr. Way said. It is expected a larger participation of foreign nations will come this year. The safety events at the exposition, it is known, will be on a larger scale than heretofore.

Among the important features to be worked out is the old-timers' gathering, a recognition of the veterans of the industry.

Special rates for attendance at the International Petroleum Exposition and Congress, Tulsa, October 5-12, have been secured through the Southwestern Passenger Association, covering all of Oklahoma and Texas and parts of Louisiana, Arkansas, Missouri and Kansas. Other associations have been asked for similar concessions. The entire United States and most of Canada had these exposition rates last year.

BITURINE Enamel is rendered absolutely impervious to corrosive elements and is safeguarded against electrical break down by the high quality ingredients used in its manufacture, and which have been chosen for their remarkable resistance, lesser permeability, greater ductility, and greater tensile strength, all blended from over twenty years of experience and experimentation in the manufacture of protective coatings.

As a result of this meticulous care Biturine Enamel has been specified again and again on important pipe line installations where complete protection and not price per barrel of coating has been the deciding factor.

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Practical Suggestions in Refining

By W. T. Ziegenhain

SUGGEST METHOD OF FIGURING COST OF MAKING BRIGHT STOCK

Because bright stock goes through so many steps in its processing and many of these are costly in material, an exacting and uniform method of cost accounting is necessary to accomplish savings in operation and to serve as a guide in speeding up or retarding operations during the fluctuations of the market price.

The problem of figuring the cost of manufacturing bright stock in an operating plant is less difficult than some other products even though bright stock goes through many more processing steps than any other standard product. It is simplified due to the fact a price may be readily established for the raw material, for it may be dark residuum worth only a fuel oil price, a dark stock suitable as steam refined stock after a chemical treatment or it may be a good grade of steam refined stock. In any case, it is an easy matter to place some value on the raw material to be processed based on what it would bring if sold on the open market without further processing. The lower priced raw material generally calls for an increase in the processing cost, particularly the treating and filtering cost, so a standard method of figuring processing costs helps in determining which of the several raw materials available from different crudes will produce a standard quality of bright stock at the lowest cost.

A method of determining the processing cost is shown below, including assumed expenses for the various steps. The steps are segregated under seven heads and while one or two other heads may be found necessary in cases where the method of processing differed from that shown in the flow chart below, it could be used as a basis in most any case.

Value Raw Material

If the residuum to be processed is a steam refined stock, or practically so, it would take a base price of about 12 cents per gallon, according to the present market. If it is a very dark residuum it might only be worth a fuel oil price, but there is often too liberal an attitude taken in this respect. Ordinarily a selected grade of crude is run for bright stock and there is additional expense incurred in handling it separate, both at the plant and in the field. The base price should reflect any of these expenses. Similarly if the residuum could take a higher value due to suitability in making a treated steam refined stock or some other product of higher value than fuel oil, it should be given an equivalent value less any necessary processing costs to make it into the alternate product.

Treating Cost

It is not difficult to determine the amount of acid, either new or reclaimed, the amount of caustic, water and any other chemicals used in treating the stock and charge them direct against the cost of treating. This data collected over a period of a month is sufficient to give an accurate chemical cost. The item of labor may have to be taken as a part as the total pay roll for the agitators including that spent for treating light oils, lubs and other oils. This splitup may be based on the hours spent in treating the respective oils rather than on the number of barrels, for it requires as much attention and time to treat one batch of cylinder stock as it does to treat several of light oils or lubs. Power consumed in pumping the stock from the rundown tanks to the agitators may be metered, similarly, power consumed in blowing or circulating the oil and chemicals during treating may be metered but if the installation is small and this is impractical, it would be preferable to determine the cost of pumping as a general figure based on a short run and the power could be calculated on the basis of the number of barrels charged to the agitators.

The indirect expense shown as an item in each of the seven classifications of cost represents the interest, taxes, insurance, overhead, depreciation, obsolescence and any other charge against the equipment which is not an operating charge, but which would not be necessary were the equipment not there. This is a very difficult point on which to get several companies to agree and some believe it should not be included in figuring costs but in the case of bright stock, the equipment used represents such a great outlay and the indirect charges represent such a large share of the total cost, they can not be ignored and when included along with the operating costs, the analysis is complete and nearer accurate even if the full accuracy of the indirect charges is in question. Usually a percentage may be determined based on the amount of the investment in the equipment and this percentage multiplied by a figure representing the approximate investment and divided to represent the cost for one month, gives an approximate figure as the indirect charges. From time to time it will be necessary to adjust the investment as new equipment is installed or it may be necessary to change the percentage figure from time to time as conditions change but these facts do not render the method or the result without value.

Naphtha Cost

Some refiners do not include the naphtha cost as one of the items but break up this cost according to the departments in which it is used. As an example, the naphtha used in diluting the stock before filtering is charged to the filters, and if some is added before centrifuging that is charged against the centrifuges, etc., and these in turn are credited with the amount recovered in proportion to the amount added in each step of the processing. This may yield a truer cost in so far as the total cost of each operation but it is difficult to arrive at an equitable split-up and the accounting is simplified by carrying it as a separate charge. As a separate charge it can be analyzed from month to month more readily and irregularities in operation can be more easily seen.

SUMMARY OF EXPENSES IN THE MANUFACTURE OF BRIGHT STOCK

Expenses—	Total for month	Per gal. bright stock
Value raw cyl. stock	$50,400	$.191
Treating cost	3,525	.013
Naphtha cost	990	.004
Filter cost	9,320	.044
Chilling cost	1,490	.006
Centrifuge cost	930	.004
Distilling cost	750	.003
Total processing cost	$69,455	$.263
Credits—		
Gas oil 550 bbls. @ 2½c		
Crude petrolatum 150 bbls. @ 2½c		
Total credits	$735	$.003
Cost to make 6,300 bbls. bright stock	$68,720	$.260

In figuring the naphtha cost, the average price received for that particular grade of naphtha is used. If none is sold, or the quantity small and the price not representative of the general market, the average of the general market may be taken, or a differential established between some standard grade of naphtha or gasoline from which the month-to-month price may be figured. All of the new naphtha added to the system, is tabulated opposite the department where is was received, as filters, centrifuges, etc., so some record may be made of the relative amounts used in the different processes and at the end of the month, a balance is made as an adjustment on the amount of naphtha carried in the various blends.

A laboratory determination of the naphtha content of the various blends on the first and last of each month allows a very close estimate to be made in regard to the amount consumed for the month as loss. The details of the accounting items may be seen in the accompanying flow chart and it will be noticed an indirect charge is included as in the case of the other departments, representing the cost of carrying the money invested in the average volume of naphtha in the system during the month along with the investment in blending tanks, lines, etc.

Filter Cost

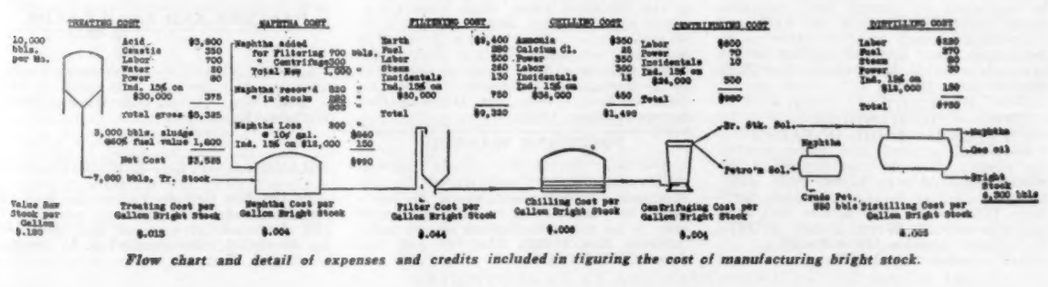
The filter cost is the greatest individual item in manufacturing bright stock and because of using the same earth many times in some cases, the problem of determining filter costs become greatly involved. In the tabulation of costs here, the earth cost is taken as the cost of new earth or its equivalent based on the amount actually paid out for the earth. If the earth is reburned earth, it naturally carries a lower figure and every refiner has his own method of arriving at an equitable value on reburned earth. The cost of fuel in heating the oil for contacting, is included as an item if the filtering is done in that manner. The labor may have to be taken from a splitup of the total filter house labor but this may be equitably derived from the relative filter capacities in use on the various oils. Bright stock solution will naturally require a large capacity for the amount filtered but this method of allocating cost seems to be the simplest and fairest to all oils.

The steaming cost is included under filter cost and includes the cost of recovering the naphtha from the steaming operation which of course is small. Ordinarily the naphtha used in washing the filters is used elsewhere in the system as a diluent and because of the method of accounting for the naphtha as outlined, this need not be included or considered here. A charge is listed in the details as "incidentals." This includes any small items consumed not included in the other expenses such as sacks for packing the filters, gaskets for the filters for steaming, etc. The indirect charge in the case of the filter house operations represents a great item and is included as explained in the previous cases.

Chilling Cost

All refrigeration supplies, power and labor consumed in bringing the temperature of the bright stock solution down

(Continued on Page 149)



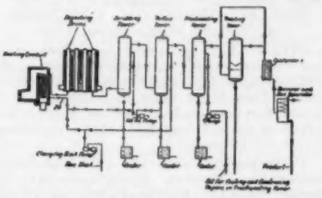
Flow chart and detail of expenses and credits included in figuring the cost of manufacturing bright stock.

Recent Patents

INTRODUCE DISTILLATE LOW IN UNSATURANTS

1,711,351. Art of Cracking Hydrocarbons. Edward W. Isom, Scarsdale, N. Y., assignor to Sinclair Refining Co., New York, N. Y., a corporation of Maine. Filed July 21, 1927. Serial No. 207,476. 8 Claims. (Cl. 196—140.)

1. In cracking hydrocarbon oils for the production of lighter and lower boiling oils, the improvement which comprises heating the oil in the vapor phase



to a high cracking temperature and, before condensation of the desired lighter and lower boiling oil, subjecting the vapors from the cracking operation to a fractionating operation, and introducing into direct contact with the vapors in the fractionating operation, as a cooling and condensing agent, an oil of boiling range corresponding to that of the desired lighter and lower boiling oil but substantially free from unsaturated components unstable at the temperatures prevailing in the fractionating operation.

1,713,323. Apparatus for Recovering Gasoline. Harold B. Bernard, Tulsa, Okla., assignor to Sinclair Oil & Gas Co., Tulsa, Okla., a corporation of Maine. Original application filed May 8, 1924. Serial No. 711,779. Divided and this application filed November 14, 1924. Serial No. 749,892. 2 Claims. (Cl. 196—8.)

2. An apparatus for separating the constituents of gaseous mixtures by treating with liquid absorbing mediums, comprising an absorber, a preliminary still, means for heating said still, an exhausting tower, a dephlegmator, connections for introducing vapors and gases from the still into the lower part of the tower and for introducing liquid from the still into the upper part of the tower, means for reducing the pressure between the still and the exhausting tower, connections for introducing vapors and gases from the exhausting tower into the dephlegmator, and means for introducing charged absorbent from the absorber directly into the vapors and gases in the dephlegmator.

(Additional Patents on Page 176)

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

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MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

REDUCE your Wiper costs by using White or Colored Cotton Waste. Costs less. More wiping surfaces. Also washed and sterilized Wiping Cloth and Wool Waste at reduced prices. Overnite shipping service. Manufactured by AMERICAN SANITARY WIPER & WASTE CO.
511-513 Broadway, Victor 2909-2910, Kansas City, Mo.

BUY OR RENT USED PIPE
and Save the Difference
15,000'— 5⅝" Casing.
10,000'— 6⅝" Casing.
5,000'— 8¼" Casing.
5,000'—10" Casing.
1,000'—12½" Casing.
1,000'—15½" Casing.
We will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.
KEYSTONE PIPE & SUPPLY CO.,
Holmes Building,
Fort Worth, Tex.

NOTICE — FOR SALE—EQUIPMENT
Humble refinery—Standard Oil product cracking plant. Wilson Refining—tank, stills, pumps, agitators, boilers, pipe and connections. Will buy salvage plants or pipe lines.
W. BOGART,
Burkburnett, Tex. Phone 136

FOR SALE
USED OIL FIELD EQUIPMENT AND MOTORS
7—Westinghouse motors size 15/35 HP.
8—General Electric motors size 15/35 HP.
1—General Electric motor size 15 HP.
1—General Electric motor size 75 HP.
1—Ideal Electric motor size 5 HP.
Approximately 35,000 ft. of wire, 125 poles and other equipment.
THE SILURIAN OIL COMPANY
508 Wright Bldg., Tulsa, Okla.

FOR SALE, by owner; complete gasoline absorption plant, rated capacity eight million cubic feet, located Northern Oklahoma. This plant built in 1923 and well worth the money. For further particulars write or wire, Room 934, Mayo Building, Tulsa, Oklahoma.

FOR SALE—One six HP Fairbanks Morse Gas Engine, direct connected to duplex 2½x4½ Fairbanks Morse Pump. Cost $540, good as new, will take half price. ATKINS SERVICE COMPANY, Box 366, Seminole, Oklahoma. Also Novo 6 HP pumping unit, $150.

SEMI-DIESEL ENGINE
FOR SALE

1—Type "Y" 300 H.P. 6 cylinder, Fairbanks Morse Co., Semi-Diesel Engine as follows:

Less: Exhaust pot, exhaust pipe and fittings, extension shaft, outboard bearing, regular pulley.

With: Individual exhaust pipe, and elbows 5' 6" long, built-in Circulating pump, Air Tanks and piping, completely reversed in direction with cylinders turned half around, regular spare parts, tools, literature, radiators and fans including bearings, flywheel 54" by 9", fuel tank and equipment, 5½" compressor direct connected to 1½" H.P. "Z" Engine.

AUSTIN MACHINERY CORPORATION
MUSKEGON, MICHIGAN.

EQUIPMENT FOR SALE OR LEASE
Pipe line equipment. Four Buckeye Ditchers, good shape, ready to go. J. A. Hazel, Enid, Okla.

FOR SALE—EQUIPMENT

FOR SALE, No. 2 National drilling machine, bailer, engine and tools complete. Good condition. Located near Mounds, Oklahoma. Frick-Reid Supply Corporation, Tulsa, Okla. Credit Department.

GEOLOGISTS

OIL LOCATED before drilling. Geophysical method. Magvibrometer Instrument; take pay in oil. No oil, no pay. Except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

LANDS TESTED for oil before drilling by the Kem-ometer. Depths indicated in advance; take pay in oil; no production no pay, except traveling and expenses while testing. Efficiency and reliability of instruments checked in proven fields. B. B. Ownby, Box 255, Lordsburg, N. M.

DRILLING after an instrument enables us to take care of all dry holes, and give the investor two-eighths of all production after investment has been repaid out of six-eighths of pipe line runs. Address, H. H. Francis, 1115 Ashland Ave., St. Joseph, Mo.

WILL TEACH and instruct you by a new method to locate productive oil and gas structure. Pay nothing until satisfied. Jesse Allen, Pimento, Ind.

OIL INDUSTRY PRINTING

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township books, well records, etc. Request on your letter head gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

CONSUMERS LEDGERS
We are prepared to furnish from stock standard forms of gas meter Consumers Ledgers. Sample forms and quotations on request. First-class material and workmanship.
DERRICK PUBLISHING CO.
Oil City, Pa.

FOR SALE—MAPS

OIL DEVELOPMENT MAPS — Any county in Oklahoma and West Texas, 50c each. Lindsay Map Company, Franklin Bldg., Oklahoma City, Okla.

BUSINESS OPPORTUNITIES

STOCKHOLDERS LISTS
Have 1,600,000 Stockholders in 1,200 companies, oil, mining, and industrial. Ask for Price List showing name, number in list, and price.
A. F. Williams
166 West Adams St.
Chicago, Ill.

CAPITAL SEEKERS—Put your project before 260 livewire brokers—cost trifling. Details free. Amster Leonard, East Orange, N. J.

WANT PARTNER with money to join me in prospecting (geophysical method) rich placer gold region in Lower California. A. de Baer, P.O. Box 892, Hollywood, Calif.

WANTED — Semi-proven or wildcat. Will lease and drill. Red Star Exploration Co., Spreckles Thea. Bldg., San Diego, Calif.

MERGER OPPORTUNITY
Well known corporation owns more than two million acres oil lands located in best zones this country. Desires to make connection with small American corporation with production, preference California fields. Holding company will be organized to control both interests. Have completed locations ten wells and everything is ready to start. Have no indebtedness. Send your proposition or ask particulars to Mr. Raul Casso, Box 2279, Mexico City, Mexico.

BROKERS WANTED
TO HANDLE
YATES POOL OIL ROYALTY
Perpetual mineral deed under producing royalty, 3 wells just completed, potential reported over 19,000 Bbls. daily, lots of undrilled locations, Gusher territory, full section mile square, sell acreage lots over all. Write, Robert E. Ellis, Saint Angelus Hotel Building, San Angelo, Texas.

MONEY RAISING

SECURITIES DISTRIBUTOR solicits inquiries from corporations interested in raising capital through marketing of corporate securities. Booklet on request. Brookworth Co., Inc., 110 East 42nd St., New York, N. Y.

FINANCING — Worthy enterprises seeking capital $20,000 upwards, submit problem for dependable solution. "We Never Disappoint." Hansel Financing Specialists, Box 315-GY, Washington, D. C.

CAPITAL SEEKERS
Will endeavor placing proposition of merit on underwriting basis. Box 44, Room 407, 26 Court Street, Brooklyn, N. Y.

HAVE capital to drill meritorious shallow blocks. Give full data. Box C-931, The Oil and Gas Journal, Tulsa, Okla.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 2443 W. 12th, Oklahoma City.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

HELP WANTED

WANTED — Engineer qualified by training and experience to handle design and engineering of complete petroleum refining plants. Position now open with old established equipment builders. Reply should give complete information of training and experience and salary. Write Box C-930, The Oil and Gas Journal, Tulsa, Okla.

WANTED—By manufacturer, one or two men with practical refinery operating experience to sell and service well-known special steel fittings used on tube stills and cracking coils. Engineering and selling experience desirable but not essential, as we want men who know tube still construction and operation and who have good personalities. Plant is in Ohio. Give age, family, record, experience and references. Address Box C-932, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER experienced in the design of compression and absorption natural gasoline plants, for the position of assistant engineer. Must have thorough knowledge of modern equipment and practice and be capable of assuming responsibilities of chief draftsman. Interview by appointment only, or in correspondence. State in first letter, age, experience, education and salary expected. Location Tulsa, Okla. Forrest E. Gilmore Co., 408 Wright Building, Tulsa, Okla.

EXPERIENCED CHEMISTS, two to five years' refinery operating experience; also chemist one year analytical experience. State age, training, detailed experience, references, salary expected, also small photo. Shell Petroleum Corp., East Chicago, Ind.

WANTED: Technical graduate with experience in and capable of design, construction, and operation of carbon manufacturing plants with experience in testing methods and apparatus and with knowledge of analytical methods for determining quality of carbon suitable for various industrial applications. Write particulars. Box C-963, The Oil and Gas Journal, Tulsa, Okla.

CIVIL ENGINEER capable of running property lines making well locations, pipe line right of ways, elevations, etc. A thoroughly experienced man for work in the Bradford Field. Wire your application specifying age, salary desired, married or single, when you could start to work and references. Follow with a detailed history of your work accompanied by a photograph preferably full length. Address Box C-962, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

YOUNG WOMAN, expert stenographer, thoroughly experienced in abstracting oil magazines, would be interested in position as confidential secretary to an executive for an oil company. Address Box C-960, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

ASST. SUPT., or Stillman, by experienced man. 12 years with two of the largest refining companies. Light and heavy oils, and pressure stills. 3½ years foreign service. Now employed, but desire change, A No. 1 reference. Address Box C-952, The Oil and Gas Journal, Tulsa, Okla.

VALUATION engineer and accountant. Graduate civil engineer. Six years experience in valuation and estimating reserves for oil and gas properties. Can do senior accounting. Desire position that will bring me in contact with the economies and production of oil properties. Services available about June 15. Age 39, married, and own my own home in Tulsa. Box C-953, The Oil and Gas Journal, Tulsa, Okla.

SUPPLY MAN with 10 years' experience desires position in sales or purchasing departments. Good references. Box C-951, The Oil and Gas Journal, Tulsa, Okla.

PATENT ATTORNEYS

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to anyone, send for blank form,
Evidence of Conception.
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER & ALLWINE,
240 Ouray Bldg., Washington D. C.

AUCTION

An Absolute Auction

Trustees Sale of

Mineral and Timber Lands

5,368.5 Acres in

LESLIE COUNTY, KY.

1,202 Acres in Fee Simple

4,166.5 Acres of Mineral Rights

Ten Miles from Henry Ford's 50,000

Acres of Coal Reserves

Ten Miles from Oneida, Kentucky

Gas Field

Sale to be conducted at Courthouse at

HAZARD, KENTUCKY

On JUNE 10, at 1:30 P. M.

by

W. R. Crawley, Auctioneer,

Consolidated Realty Company,

Louisville, Ky.

RANCHES AND FARM LANDS

LARGE TRACTS—Of Western land a specialty. $10 per acre will retail at $15 to $40. Wm. Haver, 916 Brown Bldg., Wichita, Kans.

ORANGE GROVES—TRUCK FARMS
CITY PROPERTY
In the Rio Grande Valley, the land of new Railroads, new highways, new towns and thousands of acres of new land being developed. Opportunity? A. V. Brown, Harlingen, Texas.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

CREATE AND BUILD BUSINESS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

30,000 ACRES

IN

MICHIGAN

Allegan and Van Buren Counties. Ten year leases. Written in last 60 days on most favorable terms. Twelve possible producing horizons. Highest geological authority states good structure present. Will sell all or part or will consider drilling proposition.

Write R. E. Lang, care Jackson Brothers, Boesel & Co., 332 South LaSalle Street, Chicago, Ill.

WILL BUY PRODUCTION

Will buy good production immediately if priced right. Give full information first letter, including amount of daily production, gravity, acreage, plat of property showing location of wells and surrounding wells, pipe line buying oil, price of oil, legal numbers of land, equipment, price wanted, etc. Box C-944, The Oil and Gas Journal, Tulsa, Okla.

WE WANT DRILLING BLOCKS
Send all details to
Box 152, Brownwood, Texas.

IF INTERESTED in the Michigan Oil Fields, write for free bulletin, or other information. Michigan Oil & Mining News, 115 Ionia St., Grand Rapids, Mich.

WINKLER COUNTY, TEXAS—Will sell interest in drilling well and 80-acre lease. Located NE cor. Sec. 2, Blk. B-5, southeast of the Bashara gas well. Contract for 3,500 feet or pay. Already financed. Cooper, 1,609 W. Page St., Dallas, Tex.

8 BBLS. production Section 31-17-12. Bargain if taken at once. For particulars write Box 116, Mounds, Okla., or phone Mr. Archer, 6920, Tulsa.

LEA COUNTY, New Mexico's biggest Oil Play. 40 acre lease $50.00. Chaves County, 40 acres $25.00. Monarch Inv. Co., Roswell, N. M.

CRUDE WANTED

Parties in England owning and operating a Refinery wish to get in touch with parties owning crude, which could be shipped from Gulf Ports to England for refining. Great opportunity for co-operation, which will give owners of crude good prices and share of refining profits with products sold at English prices. Write fully giving specifications of crude available to CRUDOLEUM, 61, Belsize Avenue, London, N. W. 3, England.

FOR SALE—New Mexico oil and gas leases, covering state lands. Good title. Lea County; 40 acres for $50. Chaves County, 40 acres $25. P. O. Box 194, Roswell, N. Mex.

M'PHERSON COUNTY, KANSAS
LEASES AND ROYALTIES
E. ENGSTROM,
M'PHERSON, KANSAS

NEW MEXICO STATE LEASES
BOUGHT AND SOLD

List your leases with us. Quick action if priced right. Good demand. Box C-935, The Oil and Gas Journal, Tulsa, Okla.

NEW MEXICO

For land ownership of Lea County, write Mrs. Dock Townsend, Lovington, N. Mex.

3,500 acres for lease in Washington County. Lease located 3 miles south, 14 miles north between two big oil fields. This is almost proven territory. A wonderful opportunity for right man. M. E. Fisher, Brenham, Texas.

PECOS COUNTY OIL LEASE

Fourteen thousand acres blocked solid. bonus fifty cents per acre, twenty-five cent rental, ten year lease. No drilling requirements. No dry holes. Address Wilcox & Stone, Alpine, Texas.

15,000 ACRES of best oil and gas lands in Kentucky and Tennessee selected by geologists on the best producing structure in those states and close to pipe line. Long term leases, very low rental. Will sell all or any part or will join others in developing same. Dr. W. D. Mixson, Waycross, Georgia.

LEASES—PRODUCTION

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

SHALLOW OIL

One hundred dollars will buy an assignment of a 128th interest, or $200 will buy an assignment of a 64th interest in drilling well on seventh-eighths lease covering 80 acres in shallow pool of Kiowa County, Oklahoma.

Discovery well brought in for 115 bbls. initial last October, still pumping 50 bbls. of 24 gravity oil from 440 feet. Gas sand since discovered estimated good for 1,000,000 to 5,000,000 cubic feet at 625 feet. Second oil sand recently uncovered at 920 feet variously estimated good for 25 to 100 bbls. of 36 gravity oil. Fourth sand predicted by geologists to be found at approximately 2,000 feet.

With lease drilled up you can visualize the enormous returns. Wire reservation or mail money order immediately as the sale of only a few interests are needed to complete well. We reserve the right to return all over-subscriptions. First come, first served.

Address W. C. Adams, Petroleum Exchange, Perrine Bldg., Oklahoma City, Okla.

HAVE 126 leases, 10 oil wells on four leases, Wichita Falls district, splendid organization. Will sell all or one-half interest. Ideal nucleus for oil company. Box C-950, The Oil and Gas Journal, Tulsa, Okla.

DRILLING blocks, leases, royalties in Ellis, Trego, Rooks, Norton Counties. Write or wire W. J. Madden, Hays, Kansas.

BROKERS: Western Oklahoma leases, drilling blocks, royalties. Joe P. Crawford. Oklahoma City, Okla.

LEASES and royalties, Caddo, Blaine and adjoining counties. Write for complete list. A. E. Baldwin, Anadarko, Okla.

SHALLOW WELLS, high grade oil, acreage cheap, money refunded if not productive, dry hole money pays cost of drilling. A. W. Groseclose, Oklahoma City, Okla.

ROYALTIES AND LEASES,
BOUGHT AND SOLD.

25 years experience in the Mid-Continent oil fields. E. J. Davied, Fort Stockton, Texas.

LANDS, Leases, Royalties and drilling blocks in proven or unproven territories, Winkler, Pecos, Ward, Loving, Reeves, Culberson and adjoining Counties. Wire or Write.
H. F. Anthony, Anthony Bldg.,
Pecos, Texas.

WINKLER—PECOS COUNTIES
Leases and Royalties
W. S. PATTERSON
Pecos, Texas

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633, Pecos, Texas.

CHECKERBOARDED acreage 2½ miles north Trees well 5S, 15W, Osborne Co., Kansas, @ $2 to $5. C. F. Barb, Golden, Colo.

HAVE 3,000 acres Woodard Co., Okla., joining land leased and owned by major companies. Big play here with Prairie, Bu Vi Bar and Sinclair drilling deep tests. Opportune time for right party to drill test or will take cash consideration on both lease and royalty. Mrs. J. M. Hale, Waynoka, Okla.

WOULD YOU invest $200.00 in producing lease paying over 40% on investment with locations yet to drill, full details. P. O. Box 183, San Antonio, Texas.

HAVE LARGE block new and extended permits in Vernal district, Utah, where recent oil strike proves enormous new field. Have corporation complete, set up ready to go to live wires who know where and how to get money Can sit on inside. This is wonderful deal. Write or wire P. O. Box 882, Salt Lake City, Utah.

FINLAY DOME district, Hudspeth County, Texas, looks good. Map and lease prices $1.00 cash.
G. D. BATEN,
BOX 1591, EL PASO, TEXAS.

LEASES—PRODUCTION

OIL AND GAS production for sale in the various fields of Louisiana and Arkansas; also refinery with production; many bargains, all safe investments. Address, G. Lucas, 712 Dalzell St., Shreveport, Louisiana.

FOR LEASE 160 acres, fee. The southwest ¼ Section 28, Township 16 North, Range 3 West, in Logan County, Oklahoma. Mrs. S. L. Anderson, 5251 Itaska St., St. Louis, Mo.

FOR SALE 5,000 acres, Rice Co., Kansas. No drilling requirements, good geology. 10 year leases. G. W. Moore, Box 6, Independence, Kansas.

OREGON BASIN, WYOMING

460 preferred acres out of 1,840 acre Atherly Permit. ¾ Mile from best well in field. Now drilling on three sides. All good inside acreage. 1 gas sand. 3 proven large oil sands. No dry hole in field. Wells from 500 to 1,500 daily in top sand. Reliable operators only. Write or wire to Hand, Landfair & Rodgers, Basin, Wyo.

NEW MEXICO LEASES

In Roosevelt County surrounded by various companies all 10 year lease and 50c rental. 9 years yet to run and rental paid until July, 1930.
80 acre leases $150.00
160 acre leases $250.00
GLENN MYERS, SAN ANGELO, TEX.

FOR LEASE, Oil and Gas acreage in Section 16-17-19 and 20-12-11, also in Sec. 21-12-9, Okfuskee Co., Okla. Address Box C-961, The Oil and Gas Journal, Tulsa, Okla.

SOUTHWEST Texas Oil—For information send $1 for year's subscription to Petroleum Reporter, Milam Building, San Antonio, Texas.

OIL LEASES for sale for the rental. 4,000 acres 50c per acre. Box C-942, The Oil and Gas Journal, Tulsa, Okla.

LEGAL NOTICE

NOTICE

Under authority granted by a resolution of the Board of Supervisors of Isabella County, Michigan, the undersigned committee, will on the 19th day of June, 1929, at 12:30 Central Standard time in the office of the County Clerk of Isabella County, Michigan, in the Court House at the City of Mt. Pleasant, Michigan, offer to the highest responsible bidder an oil and gas lease on the following described land:

The S. W. ¼ and S. W. ¼ of the S. E. ¼ of Section 28 Township 14 North Range 3 West Isabella County, Mich. the same being known as the Isabella County Farm and being located in Chippewa Township, Isabella County, Michigan.

Copies of the proposed lease may be secured from Perry Thompson, County Clerk at his office.

Bids will be for a bonus consideration in addition to stipulated royalties and a copy of proposed lease will be read prior to the making of said bids. The Committee reserves the right to reject any and all bids for good cause and the successful bidder's lease is to be approved by the entire Board of Supervisors before same becomes effective.

E. E. Hapner
Willis Genuine
Committee.

Perry Thompson,
Clerk.

ROYALTIES—PRODUCTION

PERPETUAL ROYALTIES

ROYALTY BLOCK of 6,500 acres (solid); will sell one-half royalty and 10-year lease fully paid up, priced right. Drilling block of 20,000 acres (solid); want drilling contract for well. Perpetual royalties in Clark and Meade Counties, Kansas. Also Beaver and Harper Counties, Oklahoma. For full information wire, phone, write J. O. West, Englewood, Kans.

YATES POOL ROYALTY

WILL sell 1 acre or more Sections 10 and 19, Blk. 194, Pecos County at $250.00 per acre. Glen Myers, San Angelo, Texas.

ROYALTIES—PRODUCTION

OIL PRODUCING ROYALTIES
BOUGHT AND PAID FOR
M. C. BRE-DAHL
308 MID-CONTINENT BLDG.
TULSA, OKLAHOMA.

INEXHAUSTIBLE Gas Wells at 300 feet 3,000 acre block in SE Kansas close to good industrial year around market at 10 cents. 5 gas stratas 165 to 850 feet, gas production on all sides, no line pressure to buck. Long life sand gas and practically no decline to shale gas. Almost impossible to drill a dry hole. Block is for sale reasonable. Address P. O. Box 533, Bartlesville, Okla.

BROWN COUNTY, TEXAS, ROYALTY

One-fourth Perpetual Royalty on 73 acres shallow settled production and $7,500 worth of oil out of ⅞ths of first oil produced from this lease. Oil payment secured by first lien on lease. Reasonable terms to responsible purchaser. James H. Green & Co., Inc., P. O. Box 228, Brownwood, Texas.

IN THE MARKET for small shallow production, in Oklahoma and paying royalties. Give full details first letter. Box 684, McAlester, Okla.

J. A. WOLF & COMPANY
127 N. Dearborn, Chicago, Illinois
We deal in Oklahoma Royalties exclusively

ROYALTIES, oil leases, drilling blocks, lands in fee, title requirements secured. Good references of long standing. D. J. Perry. Edmond, Okla.

SEDGWICK, Harvey County, Kansas, Royalties on core drilled blocks. offsetting drilling wells and locations, also Ness County leases and royalties. James R. Haynes, Grantville, Kansas.

FOR SALE, OIL AND GAS ROYALTY

In 4,480 acres out of 8 sections in Block B-6, Winkler County. Land leased to Llano Oil Company, Texhoma Oil & Refining Company, Kingwood Oil Company, Magnolia Petroleum Company, Tidal Oil Company, Amerada Petroleum Corporation and Marland Oil Company. Will sell a limited number of 1/1,024 undivided interests at $175.00 each. J. M. Willis, Attorney, Petroleum Building, Fort Worth, Texas.

BIG OIL Royalty bargain near Wichita. Close to production. Offset drilling. Dirt cheap and looks like cream. P. O. Box 888, Wichita, Kans.

LEA COUNTY, NEW MEXICO
Perpetual Royalties.
W. S. Patterson
Pecos, Texas

WESTERN OKLAHOMA royalty ahead of the drill. Inquiries invited. Joe P. Crawford, Petroleum Bldg., Oklahoma City, Okla.

WEST TEXAS ROYALTIES and leases, all active areas. Cheap land and ranches. J. L. Ferguson, San Angelo, Tex.

LIVE OIL royalty proposition wanted, overriding preferred. To sell clients through salesman. Proposition must be in well now drilling. G. Snyder, Belvedere 319, West 48th, Room 323, New York City.

OIL ROYALTIES and Land Investments, Lindsay Map Company, Franklin Bldg., Oklahoma City, Okla.

ROYALTY
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(ADDITIONAL CLASSIFIED WANTS ON PAGE 144)

Large Consumption in Chicago Area

Demand Mostly Cared for Through Contracts and Spot Buying No Larger. Prices Unchanged. Antiknock Fuel Feature

By J. B. Waldo

CHICAGO, June 3.—A continued large consumption of gasoline was insured in this city and vicinity and over most of the Indiana territory by a clear week end. Monday was bright, though rather cool for the season. There was little change in the situation in this market on Monday. The demand for gasoline while large was mostly cared for through contracts and the amount of spot buying was no larger than a week ago. Prices were unchanged, most refiners holding for 9¼ cents for U. S. Motor although an occasional refiner and most marketers had material to sell at 9 cents and some transit gasoline could be occasionally picked up for a little less. By the end of the week this cheaply bought material should be closed out as it is the fag end of May purchases. Some gasoline was offered by responsible refiners at 9 cents over June to marketers for resale and one or two instances were noted where smaller refiners were asking for some relief in the shape of immediate orders through marketers. The jobbing trade as a rule still state they have all the gasoline ordered they can take in at present and it is hard for a seller who has kept his customers filled as the market has advanced, as most of them have done, to quickly find a place to put even 25 cars at this time. One feature of the present situation is the large demand for antiknock gasoline. This demand was active on Monday and the call for the higher tests was light.

Kerosene and Furnace Oils

Kerosene was quiet, some reporting a little better business while others were not doing as well, but they agreed that the business was not important.

Furnace oils were active on future business only. The market for the grades of fuel oil from 24-26 and up is firm and it was hard to buy these and the gravities below that grade if low in sulphur showed strength. In the heavy grades the prices were not strong although there was no change made in quotations. The consumption is still good but is at present very largely on contracts and the spot demand was not active at the beginning of the week. Motor oils moved freely and the market for all refinery lub stocks was very strong.

Good Gallonage

Local sellers of gasoline had last week, what they have been longing for, a spell of warm, pleasant weather. It was very warm all week and the holiday was just about ideal for the use of cars. Jobbers had prepared for a good gallonage on Memorial Day and many have cars in transit to replace their sales of that day but there were many orders received on the two last days of last week both for small and for larger quantities and the gasoline season seems to be well under way. The season is a week or two ahead of the average year in this part of the country and this means a longer driving period. Some years June is not a good month for gasoline consumption but if it is as much better than May as May was than April, the industry will have a gasoline consumption much larger than the estimated increase over 1928 based on the number of cars registered at the beginning of the year. This is in part accounted for by the great number of new cars that have been marketed since the beginning of the year. Country reports as to the business done over Memorial Day show that business was away ahead of the preceding days of the week, and these days were called good days for gasoline sales.

The tendency of this active consumption was to make the refiners and in fact the entire industry very optimistic. For one thing there is good money in the business. Some of the jobbers even have commented on the situation as showing too much profit, that is that there is an opportunity for price cutting, provided the price cutter could secure the gasoline. Prices are somewhat higher than at some previous occasions but the records show by comparison they are really low. One jobber quoted from his records last week the Chicago prices for U. S. Motor and as a matter of comparison the cost of 36 gravity crude. In April, 1925, this local jobber had a station price of 21 cents with crude quoted at $2; in May, 1926, his station price was 21 cents with crude posted at $2.29; May, 1927, witnessed a station price of 18 cents with crude at $1.28, and May, 1928, had a station price of 16 cents with crude still at $1.28. The present station price in this territory is 17 cents with 36 gravity crude listed at $1.45. This jobber sees no reason for believing that the public is greatly interested in the cost of its gasoline or motor oils. When the new tax on gasoline sales in Illinois takes effect on August 1, next, there will necessarily be an increase in the station price of 3 cents but the motorists will know this is due to the tax and is not an advance made by the industry. The event will at least give a good opportunity to test the result on gasoline sales of such an increase.

Price Held

The refiners held their price for U. S. Motor gasoline at 9¼ cents all of last week. They continue to report their business against contracts is very large, their customers ordering their full quotas promptly as a rule and some occasionally exceeding their regular quantity for the month. On the other hand even following Memorial Day the refiners were not getting as much spot business as they wanted. Reports varied but the average was that the spot movement was light. One reason was the naming of lower prices than 9¼ cents by many sources of supply, both refiners and marketers. The latter have some material remaining from earlier purchases that cost them much less than they could buy at present. If they could carry these purchases over into June they would be more interested in holding for a price but they must order out the unsold cars during the month for which they were bought. All of last week there was considerable selling of U. S. Motor gasoline between refiners, marketers and jobbers at prices ranging as low as 8½ cents and up to 8⅞ to 9 cents. In some cases marketers sold to refiners and to other marketers. It will probably take until June 6 before all of the May purchases have been closed out. With a continuance of favorable weather the demand should be sufficient to absorb this quantity with no disturbance to the market. Mention has been made that some refiners have quoted lower than the price of 9¼ cents held by the major operators. Several quotations have been made of 9 to 9⅛ cents for prompt shipment, 9¼ cents over the first half of June and 9½ cents over the last half of that month out of Oklahoma and business has been booked at these prices. Just how much is not known but several refiners have quoted these prices and were still doing so at the end of last week. These prices were made to jobbers. To re-sellers quotations were still made at the close of last week at 8⅞ to 9 cents. Group 3, for 10 days delivery and 9 cents over the first half of the month and 9¼ cents over the month. The price situation now, and usually the same rule applies, depends on the position of the refiner. If he is well sold up he asks higher prices. If gasoline is accumulating he will make a lower price to some of his customers even if he does not send out an open lower quotation. Some can and will wait for the market to come to their ideas as to price while others believe in taking a profit. One of them said last week he had never known of a refiner going broke selling at a profit and he had known of some who had lost money by waiting too long for a higher price.

Premium Fuels

The blenders of Ethyl gasoline are having a large business in this territory and the sales are much greater than they were a year ago partly because of the wider offering of this grade. It is a rather curious fact many of the users of Ethyl gasoline believe firmly it is a carbon remover. The makers do not make this claim for it but some experienced oil men will use an occasional fill of Ethyl for the purpose of cleaning out the carbon from the cylinders of their autos. Generally the motorists are making no complaint of the quality of gasoline and from now on the weather will make it possible to use with some success even the least efficient makes of motor fuel. A large quantity of naphthas from West Texas is being shipped into this territory some pre-blended with natural gasoline and some left for the jobber to blend. Some jobbers claim the quality is very satisfactory. It is admitted it has excellent anti-knock values. Some oil men attach too much importance to these unusual products. There is no general supply of them. The bulk of the gasoline sold in the Standard Oil Co. of Indiana territory is good U. S. Motor gasoline and the average motorist is not able to recognize any difference in the various makes he secures through purchasing at a number of different stations.

The prices for the higher tests have been advanced by the refiners as their price on U. S. Motor gasoline was increased. The demand is not brisk. It is noticeable more and more refiners are not running the higher tests but have apparently a single grade which may be varied. Several now have but the U. S. Motor gasoline and the 60-62-437 endpoint which the trade assume in their regular U. S. Motor blended with natural gasoline. Then they have their antiknock gasoline, usually a special product but in some cases a blend. It seems the better plan and one which is conducive to a better average quality in their regular product and a larger profit to the refiner. In the Eastern part of the territory and in Ohio there is a better situation and much less complaint. There is nothing doing here in exports and there seems to be less collecting of cargoes which may be due to the functioning of the exporting corporation.

Kerosene Sluggish

Kerosene has entered into a period of sluggishness. There was only a light business last week. The week preceding some of the refiners reported a good demand but the consumption for tractor use is about, if not entirely, over. The advance in the gasoline tank wagon with no change in kerosene gave the latter an opportunity to make a better showing but it was too late for any real increase in the business. Distillates are moving very slowly. Some industries use an occasional car but the heating season is over. Owing to the increased number of burners and the record cold spell during January and February, the consumption of furnace oils was large. Prices might have been better but most distributors did quite well for the season. The interest now centers on the closing of contracts for the coming season of 1929-30. Several refiners have closed contracts for all the distillate and gas oil they expect to run during the coming season. In their cases the quantity they will have to sell is not very great and they find their regular customers have been satisfied with the goods and the treatment and did not hesitate to sign agreements for the coming season. Some contracts call for a price the same as the market on the date of shipment with a maximum and minimum, but some distributors prefer to have a price over the season and while the prices made by different refiners vary the cost to the dealer of a good 38-40 distillate is close to 3¾ cents and a gas oil 3¼ cents in these season contracts, the gas oil to be a straw zero at this price by one refiner.

The furnace oil business is becoming much more stabilized than it was even a season back and those who have given it proper attention are finding it worth while. The gas company is making some progress installing home heaters for the use of gas but the cost is so great for the fuel that many still cannot afford to use gas but, wanting something more convenient than coal, are turning to oil for fuel. There are a score of oil burners that can supply the names of hundreds of satisfied users who will gladly testify to the greater convenience and comfort and in some cases to an actual saving in cost through the use of oil for fuel.

Fuel Oils

Fuel oils are moving actively and largely on contracts. Many refiners are trying to advance their price for their grades of fuel oil but are meeting with much opposition. Most industries that are important users of fuel oil are operating their plants at capacity or very nearly. There is no reason to expect an increase in the industrial demand in the near future for the tendency during the hot months is for plants to slow down a little even if they have plenty of orders. The tank wagon business in oil for heating is over so that the actual consumption will probably decrease somewhat. On the other hand there is a great abundance of heavy industrial fuels.

Some accumulations of fuel oil with low gravities ranging as low as 10 gravity and less are now being placed on the market as they can be shipped and used to best advantage during the warmer months. Only a comparatively few plants are equipped to use this extra heavy oil but they are large plants and the consumption is missed as this heavy oil displaces an equal quantity of refinery oil. Another point to be remembered is that with the increased output of gasoline, the refiners must produce an added quantity of fuel oil. Only a short time ago the sales manager for a large refining organization said that the "fly in the ointment" with him in the big gasoline busi-

(Continued on Page 149)

Classified Wants

(Continued from Page 143)

ROYALTIES—PRODUCTION

WANTED—North Central Texas producing royalties. Archer, Wilbarger, Stephens, Brown and Shackelford preferred. Will deal with owners only. Send details first letter. Address "Operator," Box 1328, Breckenridge, Texas.

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DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

Steady to Strong Markets in the East

Gasoline Firmer Following Marked Increase in Consumption. Early Advance in Tank Wagon Basis Looked For

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 3.—Steady to strong markets for the principal refined products are reported throughout the East Coast area. Gasoline has firmed up on a marked increase in consumption, and an early advance in the tank wagon basis is looked for in several sections. The tank car market is strong and active. Lub oils have again firmed up on cylinder stocks, and buying is on the increase. Kerosene is holding its own under fair buying.

An early advance in the Gulf export market for gasoline is looked for by many operators here. Domestic prices at the Gulf are now a half cent or more over the export basis, and principal refiners are expected to take some action to bring the quotations on export grades back into line shortly. In some quarters it is expected a general advance of 1 cent will be made on all grades of export gasoline, while some operators evidently believe that on the higher grade naphthas a mark-up of as much as 2 cents may be looked for. The Export Association held a meeting here during the week, but nothing was done with regard to any changes in export quotations, and it was declared the meeting was a routine affair. Export buying of gasoline has picked up appreciably and further gains are looked for in this division.

Tank wagon gasoline sales are picking up steadily, and with tank car markets on the upward move, the trade is looking for advances in tank wagon prices in several section within a few weeks.

Tank Car Gasoline

The jobbing market remains in firm position with U. S. Motor at refinery terminals unchanged at 10 cents by principal sellers. In some sections this quotation brings the delivered price at about the same level as the best figure which jobbers can work on marginal contracts, although in other instances, where the spread is wider, jobbers are operating on their marginal contracts. Weather conditions have been quite favorable over a great part of the East Coast territory and jobbers have been back into the market for replacement stocks with more frequency. The close of May witnessed an exceptionally heavy volume of tank car movement. Many distributors were covered through May at the old price of 9 cents, and just prior to the end of the month ordered forward as much gasoline as their storage could hold.

Refiners report that contract bookings for delivery during the first half of June have exceeded expectations in many cases, while in many instances jobbers have booked for the entire month at the 10-cent level. Operators in some instances are just as well satisfied to book only two weeks ahead, in view of the stronger position of the general market. Last summer, it will be recalled, refiners in most instances were booking only two weeks ahead, owing to the strong position which U. S. Motor occupied, and the steadily advancing prices at refineries. It is expected refiners and marketers will revert to this selling policy within the next few weeks in the event that the demand for gasoline continues to expand at the current rate.

California gasoline is entering into the marketing picture in the East Coast area on a much broader scale than in the summer of 1928. A number of the large integrated companies with California subsidiaries have been utilizing California gasoline to a considerable extent in their premium mixtures while the Pacific Coast product has also obtained wide distribution without admixtures with other gasolines, being pushed on the ground of its natural antiknock properties. Marketers in the East, in one or two instances, are again quoting the California motor fuel at a quarter cent premium over eastern gasolines, and it is expected this premium will hold in the jobbing market during the remainder of the season.

Refiners are devoting more attention to the marketing of their premium grades of gasoline, and it is expected sales efforts on these fuels will again dominate the advertising campaigns of a number of the leading marketers. The demand for ethyl is more than holding its own in many sections of the East, and this fuel is coming into still wider popularity.

There are numerous rumors in circulation in the gasoline market regarding the improvements which some refiners have succeeded in making in their gasoline producing processes. These improvements, it is said, have passed through the experimental stage, and the refiners before the summer is over will be announcing higher types of motor gasoline than previously produced on a commercial scale for the regular tank wagon distribution. While one or two companies have been named in conjunction with "revolutionary" improvements in types of cracking equipment, etc., the situation is still in the "rumor" stage. There is no question but that refiners and marketers alike in this area are paying more attention to the quality of their gasoline than ever before.

Tank Wagon Gasoline

Markets are strongly maintained, and it is expected schedules will be advanced in several sections in the near future. The tank car market has now advanced a full cent in the past fortnight without any corresponding increase in tank wagon prices.

Filling stations handling the leading brands of gasoline continue to quote the retail market at 21 cents, with independent brands selling at 3 to 4 cents under this level.

Kerosene

Water white continues held at 8 cents in the tank car market, with a fair movement reported. The market situation is being aided somewhat by heavier buying of both prime and water white for export. Jobbers are still drawing stocks in fair volume, and reports to refiners' sales departments indicate a good volume of business is in sight over the summer.

The tank wagon kerosene situation is without change. Inquiry is well maintained, and marketers continue to quote 15 cents delivered to store. Heavier buying is reported from the so-called summer resort sections, where the season is just getting under way, and where kerosene is largely used for cooking purposes.

Paraffin Wax

An easier tone has developed in the market, and prices are fractionally lower on several grades. Domestic buyers are still operating hand-to-mouth, and while export inquiry has picked up, buyers are still showing very low price views, and are forcing concessions on many sales.

Spot 120-122 a.m.p. is a quarter cent lower at 3⅝ cents per pound, with 125-127 a.m.p. off an eighth at 4¼ cents. The market for 133-135 a.m.p. is an eighth off at 6⅛ cents. Sellers are still quoting 135-137 a.m.p. at 6½ cents, but business has been done at 6.45, and buyers' bids are about five points under that figure.

Crude scale has softened further, with 122-124 a.m.p. current offered at 2⅞ to 3 cents per pound. Much of the weakness in paraffin, both crude scale and fully refined, seems to be centered on the low melting points.

Lubs

Refiners are offering for forward delivery at present spot quotations, but buyers in most instances appear content to operate on a week-to-week basis in the spot market, rather than make forward committments at present prices.

Red and pale oils continue without change. While demand has picked up a little, this branch is still far behind cylinder stocks in both demand and market strength.

Fuel Oil

Heavier imports of South American crude at East Coast refineries have not tended to strengthen confidence in the position of the market for Bunker "C," although the market appears steady at $1.05 per barrel, at refineries, and $1.10 barged alongside within the harbor limits. Imports of crude last week at New York alone were 1,211,000 bbls., and have been running close to the 1,000,000-bbl. mark in previous weeks. For all Atlantic Coast ports, the week's total of crude and refined oils was 2,301,000. With these imported crudes showing a heavy fuel oil content, it is but natural to anticipate further additions to refinery surplus holdings.

Notwithstanding the bearish position of the market, due to current oversupply of fuel oil, the market position in the East is still fairly sound. Many interests had believed that Bunker "C" was due to break under the $1 per barrel level at the start of the current year, when the low-priced contracts which Gulf holds with the shipping board went into effect, but the expected break failed to materialize. While it is unquestionably possible to pick up a few odds and ends of fuel oil in the East under the $1.05 basis at refineries, the general market remains quite steady at that figure, and many interests are more inclined to look for an advance than for the opposite.

Diesel Oil

Contract withdrawals continue to account for the bulk of the activity in this division. Refiners are carrying large totals of business on their books at $2 per barrel, refinery terminals, and in addition they are getting a substantial amount of spot business at the same figure.

Gas Oil

Conditions in this division have undergone no important modification. The market for 32-36 oil ranges 5 to 5¼ cents with movement fair. As the season for heating oils nears its close, offsettings of low grade recycled oils are becoming heavier, and the market tone is softening in consequence. Many of the principal consuming interests, such as the large artificial gas companies, are reducing their storage and are coming into the market for spot supplies only in a limited way, as replacements are actually required. This cleaning out of surplus stocks is a seasonal affair, preparatory to restocking on the lower market looked for during the summer.

Refiners are storing whatever straight-run gas oil they may be turning out for their own cracking requirements during the summer, and this type of oil is still at a premium.

Considerable quantities of low-grade gas oil have been moving into consumption on furnace oil contracts during the past season, with the market for these oils quoted all the way down to 4½ cents. With warm weather at hand, there has been a sharp drop in the call for this type of oil, and stocks are accumulating at the refineries. Jobbers of furnace oils have been working on their stored stocks, and are making every effort to clean out their tanks for the summer. Tank car business has fallen away appreciably, although in metropolitan New York there is a stable demand right on through the summer months from office building and apartment houses which keep part of their heating equipment in use the year around to provide hot water and other requirements. However, the bulk of this business is on term contracts, and there is relatively little open-market buying for this trade.

Export Markets

Operators are looking for an advance in the Gulf gasoline basis, but up to the time of writing, refiners have not increased their prices. Motor for domestic distribution is now about a half cent over the export market at the Gulf, and showing a steadily advancing tendency, and the usual differentials on other grades are also out of line. Three cargoes were reported sold out of the Gulf during the week, all for France. One comprising 64-66 and Navy, totaled 7,500 tons. The second, of 6,000 tons, consisted of Navy, 64-66, and prime white kerosene. The third, of 4,500 tons, comprised 64-66 and prime white. All were reported placed at the established basis. A number of additional inquiries are in the market, and are expected to be fixed shortly.

Better buying of kerosene for export has aided in holding the market position. Prime is in principal demand, although there has been an increase in the inquiry for water white. Much of the current business is for shipment to the Continent, although there is some call for stocks for South America, and fair quantities are also moving to the Orient. Prices on cased stocks continue withdrawn.

Lub oils are selling in better volume for export, notwithstanding the continued strong market on all grades. Most of the buying is in small lots for immediate shipment.

Paraffin wax buyers are in the market in a better way, and a fair amount of business has been booked, both for prompt shipment and for shipment over the first half of June. The market tone is still showing some softness.

Quiet markets for petrolatum for shipment abroad are noted with prices fairly steady and unchanged.

Export trading in other refined products is of routine interest. A moderate call for gas and fuel oils for shipment abroad is noted, and trading is mostly in small parcels.

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf ports for the week ended May 25 totaled 509,000 bbls., a daily average of 72,714 bbls., against 537,000 bbls., a daily average of 76,714 bbls. for the previous week and a daily average of 69,179 bbls. for the four weeks ended May 25. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	145,000
New York	80,000
Philadelphia	318,000
Others	66,000
Total	509,000
Daily average	72,714
Daily average four weeks	69,179

There were no receipts of California crude or refined oils at Gulf ports during the week.

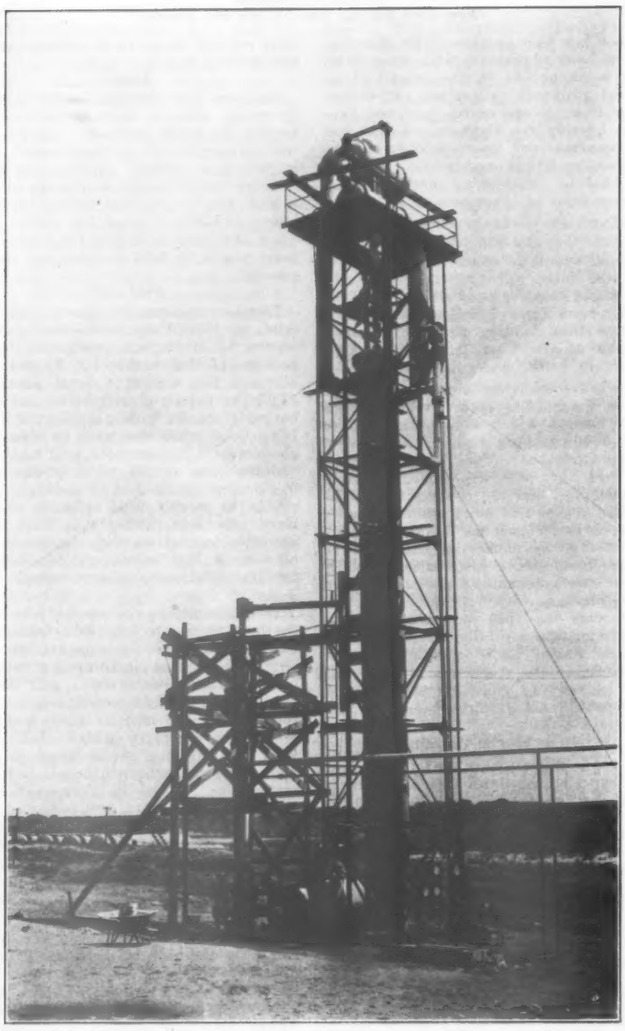
Distribution of total California oil receipts is as follows:

Crude	95,000
Gasoline	414,000

California gasoline is beginning to move eastward in increasing quantities, and further sharp gains are indicated as

(Continued on Page 149)

Another ERECO Rectifier Being Installed



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Natural Gasoline Manufacture

NATURAL GASOLINE STOCKS REACH NEW PEAK DURING MONTH OF APRIL

Natural gasoline stocks reached a new peak during April as the daily average mounted to 5,970,000 gallons. The total production for the month fell slightly below that of the previous month due to April having but 30 days. The increase was general, although the Seminole Field in Oklahoma and the Seal Beach and Huntington Beach Fields in California recorded the greatest increases.

Compared to a year ago the April production is 23 per cent higher and stocks at the end of the same month this year are 42 per cent higher. Total stocks at the end of April this year amounted to 48,976,000 gallons, or the equivalent of about 6 days' production at the present rate. This does not appear high compared to refinery gasoline stocks and production but emphasizes the trend toward providing greater storage room at the plants. The detailed report of the Bureau of Mines follows:

NATURAL GASOLINE, APRIL, 1929 (Thousands of gallons)

	Natural Gasoline: Production: Apr. 1929	Mar. 1929	Jan.-Apr. 1929	Apr. 1928	Stocks end of mo.: Apr. 1929	Mar. 1929	Blended motor fuel—April, 1929: Natural gasoline used	Naphtha or other oils used	Stocks end of month
Appalachian	8,200	9,300	39,800	9,300	3,117	2,779	92	91	246
Illinois, Ky., etc.	1,200	1,200	5,000	1,300	301	325	....	2	11
Oklahoma	57,000	57,000	216,600	50,400	24,394	20,104	1,657	2,102	459
Seminole, etc.	29,100	*28,200	*107,100	19,400	4,081	2,824	226	535	115
Osage County	7,300	7,800	28,200	8,200	11,548	9,397	7	2	3
Rest of State	20,600	*21,000	*81,300	22,800	8,765	7,883	1,424	1,565	341
Kansas	3,000	2,900	11,800	3,200	1,340	1,086	22	4	9
Texas	33,400	33,900	126,300	26,700	16,863	14,221	413	617	225
Panhandle	13,300	13,300	50,300	8,500	9,013	8,407	227	358	82
North Texas	4,200	4,600	16,600	3,800	1,289	1,188	62	80	39
West Central	12,600	12,800	51,000	13,000	5,986	4,292	97	152	92
Rest of State	3,300	3,200	10,400	1,400	475	334	27	27	11
Louisiana	4,700	5,100	19,800	5,000	942	928	3	18	10
Arkansas	2,700	2,700	10,500	2,800	306	371	261	383	40
Rocky Mountain	4,000	3,700	14,200	3,700	495	592	....	....	....
California	64,900	65,800	238,900	43,000	1,218	1,396	....	....	....
Long Beach	20,400	20,900	78,100	12,300	....	....	....	....	....
Ventura Avenue	6,200	6,300	24,000	5,400	....	....	....	....	....
Seal Beach	3,800	3,400	12,600	2,600	....	....	....	....	....
Huntington Bch.	3,400	3,000	13,600	4,400	....	....	....	....	....
Santa Fe Spgs.	15,500	16,400	51,900	3,000	....	....	....	....	....
Rest of State	15,600	15,800	58,700	15,300	....	....	....	....	....
U. S. Total	179,100	181,600	684,900	145,400	48,976	41,802	2,458	3,217	1,000
Daily average	5,970	5,860	5,710	4,850	....	....	....	....	....

*Revised.

The indicated output of motor fuel from the above and other sources may be expressed by the following table (thousands of gallons):

	April 1929	March 1929	Jan.-Apr. 1929	April 1928
Gasoline produced at refineries*†	1,454,700	1,447,600	5,657,500	1,231,300
Natural gasoline blended at plants east of California	2,500	2,000	8,600	2,600
Natural gasoline sold direct to jobbers	2,100	2,100	8,400	2,100
Benzol production‡	10,700	11,100	42,100	9,600
Total motor fuel produced	1,470,000	1,462,800	5,716,600	1,245,600
Daily average	49,000	47,190	47,640	41,520
*Includes natural gasoline blended at refineries	145,000	152,100	551,100	110,600
†Includes natural gasoline run through refinery pipe lines in California	6,300	4,900	19,900	8,500

‡Estimated with production of byproduct coke as a basis.

Prepared under supervision of G. R. Hopkins, Petroleum Economics Division, May 31, 1929. E. B. Swanson, Acting Chief Economist.

Accurate Data on Storage Facilities Would Aid Markets

By A. F. Wood

Sales Manager, Chestnut & Smith Corp.*

This problem of storage of natural gasoline seems to have resolved itself into more of a marketing policy than a question of pure and simple storage as such. We have been hearing a lot lately about stabilizing the natural gasoline market. The rapid rise and fall of prices seems to be hard on our nerves, yet it has never been quite clear to me just why the price of natural gasoline should be expected to stand still like the Statue of Liberty for any great length of time, or when it moves, if move it must, just why it should be expected to follow the price of U. S. Motor like Ursa Major chases Ursa Minor about the great celestial pole—always ahead, yet always behing, marching on and on in a perfect and endless equilibrium. Surely the economic law of supply and demand carries with it the power in the end to enforce itself. A healthy and wholesome market is one which responds to supply and demand.

It is estimated that at least 60 per cent of the natural gasoline output of the Mid-Continent Field is directly or indirectly shipped for export. Is it not true then that at times, at least, we should expect the export market to exert its influence upon the price of natural gasoline? Therefore, the price and demand of export gasoline should and do greatly effect the price of natural gasoline often much more than does U. S. Motor.

Natural gasoline is not unlike many other commodities in that the price of the commodity is governed by the price of the surplus, whenever a surplus exists. If the surplus happens to be in storage, it is still a surplus and potentially it has the same or in the end nearly the same effect upon the market, provided, however, that the buyer knows how much gasoline you have in storage—and he does.

The surest way to reduce the price of natural gasoline is to fill your loading racks with loaded cars—then watch the price sink before you can sell. It is storage which reduces the price. If we store natural gasoline at all it seems to me we should stabilize the gasoline and store the butane in high-pressure tanks and the heavier ends in cheaper storage—then when it comes time to present the product to the thirsty markets, we can return the butane to its affinity and sell synthetic natural gasoline or market them separately as an aviation fuel and butane, bottle gas, or what not—thus working our surplus storage out into new and different markets.

Smaller Manufacturers

The smaller manufacturers need storage as much, or even more than the larger companies so that they may be in a more independent position on the market and when these small plants store, the quantity of natural gasoline in storage is not so noticeable to the searching eyes of the buyer, yet is enough to relieve distress.

It is indeed unfortunate that someone does not come along each day and buy all of the natural gasoline which is ready for the market on that particular day. Ofttimes the would-be seller is greatly neglected in this respect. Yet, on the other hand, should some refiner or exporter become a relentless optimist and assign to himself the duty of buying the surplus natural gasoline each day, if such an accommodating soul should appear among us, just what would the seller do? He would not sell. He would hold for a higher price, a higher price more than anyone would pay. Thus the price goes up! He would hold on until his storage, tank cars, jugs and buckets were all loaded shell full—then he would sell with a vengeance and at any price. Thus the price goes down! This may seem an exaggeration but it is a very mild historical statement of facts.

In spite of all this, I agree with Mr. Charles and I believe we could afford more storage, better storage, and that we should more willingly use the storage which we now have. I would go still farther—I would most heartily favor a general canvass of the refiners and exporters insisting that they buy natural gasoline at its low tide of prices for investment and store it profitably for a time of need.

*Discussion of paper by H. C. Charles, Phillips Petroleum Co., at annual meeting, Natural Gasoline Association of America.

OKLAHOMA CITY PLANT

The Coline Oil Co., a subsidiary oil company of the Santa Fe Railroad, this week will start construction of a natural gasoline plant on a lease in the Oklahoma City Pool. A Type 85 plant of the oil absorption type is to be installed by the Southwestern Engineering Corp. The Coline lease adjoins that of the Indian Territory Illuminating Oil Co. on which the discovery well of the field was drilled.

The Coline company has one gas well completed. A second well is near the producing oil sand and will be completed in the near future.

INSTALL NEW UNITS

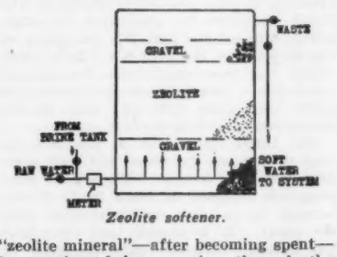
The Southwestern Engineering Corp. is installing several units of its natural gasoline plant equipment in the Mid-Continent Field. At Oilton, Okla., the company is installing a Type 75 plant for the Midco Oil Corp. This unit is about 50 per cent completed.

The Gypsy Oil Co. is installing one Type 200 plant in the Little River Field. The Skelly Oil Co. is installing two Type 200 units on the Schaffer lease at Borger, Tex.

A PRACTICAL SUGGESTION

THE ZEOLITE PROCESS

Zeolites which are on the market are silicates, the basic elements of which can be replaced. The sodium zeolite—the active form used in water softening—is converted to the calcium and magnesium zeolite by passing hard water through the mineral bed. Thus the salts which were calcium and magnesium salts are changed to sodium salts and the water is practically free of hardness. The "zeolite mineral"—after becoming spent—is reactivated by pumping through the bed a brine (common salt) solution which replaces the calcium and magnesium, leaving the mineral, again in the form of the sodium zeolite which, after flushing free of salt water, is ready for further softening.



Zeolite softener.

Surface and shallow ground waters which are not high in chlorides are successfully handled by this process.

The main advantages of the process are as follows: A high degree of efficiency is obtained; chemicals are not precipitated out in the system, thus the sludge problem does not exist, neither is there an opportunity for "overtreating"; the operation is simple and does not require skilled labor; the control is equally simple, for the mineral bed will soften a certain volume of water and when the measuring device (meter or venturi) registers that amount, the operator knows that it is then time to reactivate the mineral with the salt solution.

The zeolite companies—with the analyses and history of the water supply—will recommend the size of installation necessary to soften the required amount of water of a certain degree of hardness.

The accompanying plan substantially illustrates the operation of a zeolite softener. The accompanying diagram equation shows in a practical way the nature of the chemical changes involved.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

HARD WATER (calcium salts, magnesium *) + SODIUM-ZEOLITE (active) = soft water (sodium salts) + CALCIUM-MAGNESIUM-ZEOLITE (inactive)

Reactivation Step

CALCIUM-MAGNESIUM-ZEOLITE (inactive) + BRINE SOLUTION (sodium chloride) = SODIUM-ZEOLITE (active) + Calcium and Magnesium chloride waste water

Brief Items for Petroleum Refiners

To Start Weekly Report on Crude To Stills June 25

NEW YORK, June 1.—Co-operation of companies representing approximately 93 per cent of the total United States refinery capacity has been promised, and publication weekly of figures showing crude runs to stills, gasoline stocks and gas and fuel oil stocks will start June 25 with data for the week ended June 22, William R. Boyd, Jr., executive vice president of the American Petroleum Institute, announced today.

Within the next few days, Fred Van Covern, chief statistician of the Institute, will explain in detail to the co-operating refiners the forms on which the Institute plans to have the figures reported, as well as what each item should include.

The companies will be asked to supply figures for the initial report in time to reach the Institute's New York headquarters not later than the morning of Tuesday, June 25. California refiners will send their figures to Norval White, the Institute's California representative, at 315 Montgomery Street, San Francisco. Mr. White will compile the data there and wire the complete report to New York. Companies east of the Rocky Mountains and west of the Mississippi River will wire their figures in time to reach the Institute Tuesday morning. Companies east of the Mississippi will be asked to mail their reports, but if there is insufficient time for mail delivery, they will wire them.

TENNESSEE JOBBERS WILL OPERATE SKIMMING PLANT

CHICAGO, June 1.—Six oil companies located in and around Nashville, Tenn., have merged their operations and will continue to operate the combined business of the six under the name of the Apex Oil Corp. John Lowe is president and Frank Reed, vice president of the company.

The concerns which have entered into this merger are the Benzol Oil & Gas Corp., Cassette Oil & Grease Co., Frank Reed Oil Co., Thompson Oil Co., Estes-Cooper Oil Co., and the Southern Oil Service, Inc. The Apex Oil Corp. will resume operations of a local 500-bbl. skimming plant which has been closed down and will also continue to compound oils and greases making use of the present facilities of several of the members of the merger. The Apex Oil Corp. will operate about 150 retail outlets.

RAIL MEETING IN CHICAGO

NEW YORK, June 1.—Fayette B. Dow, Washington counsel of the American Petroleum Institute, has called a meeting of the Institute's general committee on railroad transportation, of which he is chairman, for June 21 at Chicago. Sessions will begin at 10:30 a. m., daylight saving time, in the Stevens Hotel.

Organization of standing topical committees is among the activities listed on the docket. H. W. Roe, of the Mid-Continent Petroleum Corp., Tulsa, Okla., chairman of the committee on organization, will present the recommendations of the committee.

Reports will be received also from committee chairmen: B. J. Burchett of the Shaffer Oil & Refining Co., Chicago; J. M. O'Day, Sinclair Refining Corp., New York; D. F. McCarthy, Producers & Refiners Corp., Independence, Kans.; E. E. Harrington, National Refining Co., Cleveland, and L. H. Benner, Standard Oil Co. of New York.

COMPLETE CONSOLIDATION OF RICHFIELD COMPANIES

LOS ANGELES, Calif., June 1.—Physical consolidation of Pan American Western Petroleum Co. and subsidiaries with the Richfield Oil Co. of California, welding together two organizations with sales aggregating $87,415,785 in 1928, has now been effected, according to announcement by James A. Talbot, chairman of the board of Richfield and president of Pan American Western. The consolidated company will be one of the three or four largest units in the western oil industry. It will have more than 9,000 dealer outlets and after giving effect to changes which may be made in the financial structure of the Richfield Oil Co. of California incident to the consolidation, that company will have total assets of over $126,000,000.

At the time Richfield acquired control of Pan American Western, July 1, 1928, its sales had grown so rapidly that they had almost caught up with the maximum output of its refining facilities and the company had been planning an immediate enlargement. To round out the demand of its sales department, so that it would be able to meet calls for various other petroleum products, it had become necessary for Richfield either to construct or purchase lubricating oil manufacturing facilities, steam refining (street) and oxidized asphalt plants, grease manufacturing equipment, as well as a barrel and can plant. All these additional facilities have been obtained by Richfield through the acquisition of Pan American and all are now operating at greater capacity than prior to July 1, 1928.

Prior to control, Richfield's immediate crying need was for an enlargement of its crude oil refining facilities and Pan American Western's 60,000-bbl. Watson plant so well fitted into the new picture that where Pan American had been utilizing this plant but about 58 per cent of its capacity, under the consolidation it is being used 100 per cent in addition to Richfield's own capacity of 55,000 bbls. daily. A 15,000-bbl. synthetic (cracking) plant formerly but partially operating is now running at capacity. The barrel plant is at present running at double its former output, while the can plant is turning out two and one-half times as many containers.

H. D. HINES BUYS PLANT OF INTEROCEAN COMPANY

CHICAGO, June 1.—H. D. Dines, an attorney of this city with offices at 310 South Michigan, has purchased the skimming plant at McCook, Ill., belonging to the Interocean Refining Co. This plant which has been shut down for several years has a rated skimming capacity of 5,000 bbls. daily with one unit of the Greenslade cracking process.

Mr. Dines states that he does not intend to operate the plant and will probably dispose of it later. There have been numerous rumors in local trade circles recently as to what would be done with the plant. It is known that the plant has been investigated with the view of determining the feasibility of operating it with crude oil from Muskegon, Mich., Field.

TO DISTRIBUTE GASOLINE

CHICAGO, June 1.—The Crescent Refining Corp. has been organized in this city with headquarters at the corner of Thirty-seventh Street and Normal Avenue. The new concern has been incorporated for $40,000 in Illinois and will distribute gasoline and oils. The members are given as Ben Burnkoff, Jacob Neuberger and Jake Kipnis.

RIEDEMANN MANAGER OF CRYSTAL CORPORATION

J. H. Riedemann, for the past two years vice president and general manager of the Gilliland Oil Co. of New Mexico, has accepted a similar position with the Crystal Oil Refining Corp., effective June 1. He succeeds F. W. Burford, who recently resigned his connection with the

J. H. Riedemann

Crystal corporation to devote his entire time to the Burford Oil Co. of which he is president.

Mr. Riedemann has been connected with the Gilliland company, now known as the Reserve Petroleum Co. except for the Gilliland Oil Co. of New Mexico, for the past 10 years. From 1923 to 1927 he was in charge of natural gasoline plant operations. In 1927 he was transferred to Albuquerque, N. Mex., to take charge of refinery operations and sales. Previous to his connection with the Gilliland company he was employed in the natural gasoline department of the Gypsy Oil Co.

WIXSON TO TULSA OFFICE

D. C. Wixson who has been manager of the Waterloo division of the Mid-Continent Petroleum Corp. for the past year has been transferred to the general offices of the corporation at Tulsa. In his new work he will be an assistant to R. W. McDowell, general sales manager of the corporation. Mr. Wixson formerly lived in Tulsa where he was connected with the sales department of the Producers and Refiners Corp.

L. V. Surtees who has been assistant manager of the Waterloo division has been appointed manager to succeed Mr. Wixson. H. C. Wurster succeeds Mr. Surtees. Other changes in the Mid-Continent sales organization include the appointment of F. B. Brocksus as sales manager of the Waterloo division and L. D. Lewis, assistant sales manager.

FIRE AT INDEPENDENT PLANT

One man died from burns and several tank cars of gasoline were burned in a fire at the Kansas City, Kans., refinery of the Independent Oil and Gas Co. on May 28. The fire started at the loading rack and for a time threatened to spread to the main part of the plant. The fire is believed to have originated when the exhaust of a truck ignited gasoline vapors near the loading rack.

French Government Gives Authorizations For Importing Oil

NEW YORK, June 1.—The French government has started awarding authorizations to import oil under the terms of the new French oil law which became effective April 1, last, reports from Paris state. Under the new law, all imports of oil are subjected to special authorizations extending for 20 years in the case of crude and three years in the case of refined products. Companies which have previously been importing are to be permitted to continue importing for these periods amounts at least equal to the maximum of their annual importations for the past five years.

In addition to being required to stock one-fourth of the quantities of each variety of oil delivered for consumption in the previous year, each authorized importer must also be prepared to contribute, proportionately to his imports, to "the execution of contracts of national interest for acquisition of oil or substitutes, whether directly or indirectly, by participation in agencies to be constituted to this effect." This provision was embodied in the new law, it is understood, in anticipation of the obtaining by France of large quantities of crude from Mesopotamia for refining in France.

The purpose of the new law, it is understood, is to free France as much as possible from absolute dependence on Anglo-American sources of supply, and to establish a national refining industry in France.

The authorizations already granted empower subsidiaries of Standard Oil, Royal Dutch, and Anglo-Persian to import some 20 per cent more oil than hitherto. The authorizations have also been granted to a number of small companies whose ability to handle the allotments is said to be in many cases doubtful.

The largest licenses for gasoline importations have been granted to the following: Economique (Standard), 340,000 tons; Jupiter (Royal Dutch), 288,000 tons; Desmarais (French), 265,000 tons; and Huiles des Petroles (Anglo-Persian), 184,000 tons.

Kerosene import licenses have been allotted as follows: Desmarais, 70,700 tons; Jupiter, 61,000 tons; Economique.

(Continued on Page 162)

NORTHERN CRACKING PLANT

CHATHAM, Ontario, June 1.—Officials of the Hudson's Bay Co. at Winnipeg state that plans are afoot to erect a small cracking plant at Fort Norman, on the Mackenzie River. The plant will be of sufficient capacity to distill gasoline from the Fort Norman crude, for use of motor boats plying on the northern rivers in summer. Hudson's Bay Co. boats leaving McMurray and Fort Smith on their first trip to the Arctic this spring will carry equipment for the plant, which is expected to operate before the close of the season.

SHIP MUSKEGON CRUDE

MUSKEGON, Mich., June 3.—The Simrall Pipe Line Corp. yesterday loaded in tank cars approximately 4,800 bbls. of crude oil from leases of the Muskegon Oil Corp. and four associated companies and producers who signed contracts to sell to the Shell Petroleum Corp. The corporation will continue to ship by tank car approximately 2,000 bbls. of crude oil. The oil at present is being shipped to Globe Oil and Refining Co. at Lemont, Ill. As soon as dockage facilities are completed water and rail shipments will total 5,000 bbls. daily.

STEADY TO STRONG MARKETS IN EAST

(Continued from Page 145)

probable during the next several weeks. This increase is in part seasonal, but is also due in some measure to the broader operations of Richfield and some other Pacific Coast interests in the eastern gasoline markets this season. Richfield in particular is expected to be a heavy shipper of motor fuel to Atlantic Seaboard markets during the coming months, having obtained wide distribution in New York, New Jersey, Pennsylvania, and parts of New England. This gasoline is being marketed through a subsidiary selling company direct to filling stations, by way of independent jobbers. The Richfield product is being sold at filling stations under the Richfield brand and from Richfield pumps, which are an innovation in this part of the country.

California refiners are still actively bidding on European gasoline business, and the Pacific Coast is expected to continue a leading factor in the export market situation for some time.

Petroleum Exports

The following table shows principal exports of petroleum and refined products from New York during the past three week (all figures in gallons unless otherwise noted):

	Week ended—		
	May 25	May 18	May 11
Gasoline	213,500	150,000	55,000
Naphtha	857,600	525,000	3,100,000
Kerosene	60,000	12,000	640,000
Fuel oil	28,000	263,000	26,000
Lub. oil	3,215,500	1,160,400	2,045,800
Petroleum, refined	2,933,000	1,160,000	380,000
	Pounds		
	May 25	May 18	May 11
Petrolatum	29,000	59,000	111,000
Paraffin wax	1,883,200	1,615,000	1,342,000
Refined	.....	.....	357,000
Scale	283,000	360,000	222,000
Lub. grease	1,442,800	890,000	1,030,000

Imports

Imports of crude and refined oils at the principal United States ports for the week ended May 25 totaled 2,666,000 bbls., a daily average of 380,857 bbls., compared with 1,950,000 bbls., a daily average of 278,571 bbls. for the previous week and a daily average of 299,821 bbls. for the four weeks ended May 25. Details follow:

(Barrels of 42 gallons)	
At Atlantic Coast ports—	
Baltimore	261,000
Boston	141,000
New York	1,211,000
Philadelphia	369,000
Others	319,000
Total	2,301,000
Daily average	328,714
At Gulf Coast ports—	
Galveston district	54,000
New Orleans and Baton Rouge	218,000
Port Arthur and Sabine district	93,000
Total	365,000
Daily average	52,143
At all United States ports—	
Total	2,666,000
Daily average	380,857
Daily average four weeks	299,821

METHOD OF FIGURING COST OF BRIGHT STOCK

(Continued from Page 141)

to that required are included here but if lub oils are also manufactured it may be necessary to divide the total refrigeration costs equitably. This may be easily computed based on the relative amounts and temperatures involved in the processing. Where the methods of processing of the lubs and bright stocks remain the same it is possible to divide the refrigeration cost on the basis of the quantities run through the plant. As in the other cases, an indirect charge is made and includes the investment in refrigerating or chilling tanks, lines, compressors, absorbers, etc., as parts of the refrigerating unit. If the plant also processes lubs, an adjustment must be made in the investment or percentage of the charge so not to throw all of this cost against bright stock.

Centrifuge Cost

The item of centrifuge cost is ordinarily easy to determine as it involves labor which is usually entirely independent of other departments, the power consumed in operating the centrifuges may be metered and the indirect charge is usually independent of all other departments, which included the centrifuges, building, lines, etc. Some operators credit the centrifuge with the value of petrolatum recovered under the reasoning the centrifuges bring about the separation. Because of the difficulty of selling all of the petrolatum made, it is often run to gas oil or fuel oil as cracking stock. In either case, the method of accounting shown in the flow chart does not credit the centrifuge with this production but carries this as a credit to the entire operation, as may be seen in the table of costs.

Distilling Cost

The distilling of the solution to recover the naphtha and reduce the bright stock to its required flash point involves the cost of fuel, labor, steam and power, and it is sometimes difficult to break up the total distilling cost to include an equitable portion of it in the bright stock. The labor cost may be divided in accordance with the capacities of the stills in the respective services. The steam and fuel cost may be metered or if this is not done, a general cost may be figured and multiplied each month by the number of barrels processed.

In the flow chart and example of the cost of bright stock shown here, it was assumed 10,000 bbls. of raw stock was processed for the month. The individual expenses included in the analysis were assumed and are not intended to be representative of the actual cost of making bright stock but were used to facilitate explanation of the method by an example.

LARGE CONSUMPTION IN CHICAGO DISTRICT

(Continued from Page 144)

ness his company was doing was that it made an extra lot of fuel oil to be disposed of; that they were so hooked up with contracts for their usual ouput that their fuel oil was taken care of but he had to hustle to sell the surplus that resulted from the extra refinery runs. The trade here as a rule believes that heavy industrial fuel oils will just about hold their own during the summer or may slump a little. The higher gravities will be taken care of by the cracking plants and the coming demand for next winter as furnace fuel. The spot demand is light and dealers are making every effort to land their share of the going business. The consequence is buyers are being followed up closely. Some of the quietness is due to the real or pretended indifference of buyers who as usual see no reason why they should bid up prices on themselves by any expressions of eagerness to make purchases. Some are rather over-playing the game of, "take the price I offer, if you don't somebody else will be glad to get it." Prices show little or no change in the Oklahoma and equal grades of oil with low sulphur, low viscosity. In fact, some advances in prices have been made and are being held, but in the ordinary run of industrial fuels buyers are not paying higher prices whatever the quoted price may be. In gas oils the low quotation for straightrun gas oil from Oklahoma last week was 2⅜ cents but gas oil that will be accepted by the gas companies is coming out of West Texas at 2 cents refinery, just a little more than or less than 2¼ cents, Group 3, according to loading. Some contracts are claimed to have been made over one year or six months which begin with a price of 1¾ cents refinery and increase month by month. Some of the present contracts which are about to expire had about the same prices and of course the quantity of oil desired would be larger during the time when the price was highest on such contracts which would make the contract a more favorable one for the seller than the initial price would make it appear.

Lubs Advance

The market for lubricating oils continues to advance, some of the refiners now quoting their bright stocks at 36 cents and steam refined at 18 and 20 cents. Practically every refiner of any quantity of material claims to be sold ahead on these stocks and will not accept more business without the order being referred to headquarters for confirmation. Several well known, nationally advertised brands of motor oils have been advanced 10 cents a gallon. Neutrals are quoted a little higher and generally lubricating oil stocks and compounded oils are strong with a marked upward tendency. The demand for motor and for industrial oils is very good.

Increase in Consumption

Large distributors and the smaller trade alike report a material increase in the consumption of gasoline as determined by their sales. Some major organizations are reporting what would seem to be impossible increases were it not for the fact they have absorbed other companies, adding their gallonage to their own and have also added to the number of their own stations either by construction or through exclusive contracts. The amount of contract business with small dealers has been increased very much. The majors have found that this business, if not very desirable in point of volume of individual sales, has still been the backbone of some sellers of gasoline and they have determined to have a good share of it. Almost any dealer who pays his bills with a fair degree of promptness and regularity can secure a contract in some form that is adapted to his business with a first class refiner and put out that refiner's trade mark and signs just as prominently as does that refiner on his own stations if he is willing to confine his business. A volume of business is not necessary to secure such an arrangement. This is probably a good thing for the motorist and also helps the larger refiner. This practice is not confined to this city or to any special locality but is common over this territory and judging from some instances is now the general practice. Locally the contracts with the smaller dealers provide for the exclusive sale of the products of the refiner with whom the contract is made and also for the maintenance of prices in line with those of the refiner. Conditions are very different from what they were when a station was supposed to sell 1,000 gallons of gasoline a day during the season. If it did not it was not a good station. Survey made of stations taken at random in this city recently showed an average daily sale of less than 300 gallons and this is rather above than below the average. A man connected with the department of a refinery that has to do with the purchasing of stations stated a station that could be relied on to sell 100,000 gallons or twelve tank cars a year would be considered a desirable station and they might consider one that had only sold one-half that quantity provided there was an opportunity for his company to increase the business. One reason why a small station may be desirable is that there are often possibilities for growth that are not appreciated by the owner of a small station who has had little experience in the oil business or in merchandising of any kind. It is very largely the principle of the chain store, small but steady profits.

DEMAND FOR OIL COUNTRY PIPE SLACK BUT EXPECT IMPROVEMENT

By B. E. V. Luty

PITTSBURGH, Pa., June 3.—There is nothing new in line pipe business since the recent placing of orders for two natural gas pipe lines, to run east and west respectively from the Monroe Field, Louisiana. Pipe mills do not know of any large piping projects at the present time, but expect smaller orders at intervals in connection with the larger pipe lines, as feeders and branch lines.

Demand for oil country goods generally is very poor, particularly so in welded pipe, there being a moderate demand in seamless. Pipe mills now have an idea that oil conditions are righting themselves to such an extent as to create chances that there will be an increase in drilling in the not distant future, though of course no large increase is expected.

Demand for standard or merchant pipe has undergone some slackening in the last fortnight, the pace of April not being entirely kept up. Distribution by jobbers is not up to the usual rate for this time of year and as jobbers had become rather comfortably stocked they are ordering less pipe from the mills. Earlier in the year there seemed to be a slight gain in standard pipe demand over that of last year, but this has now been lost and it looks as if this would be a relatively lean year in building, at least as to the consumption of pipe.

The general average of pipe mill operations has been lifted slightly by production against the line pipe business recently booked, and the average of all the pipe mills may be somewhat above 55 per cent. Seamless tube mills continue at about 70 per cent, making an average for tubular goods in general of about 60 per cent.

Demand for steel, in the form of placing new orders and specifications against contracts, has now begun to show some signs of tapering off, long after the usual time of year for such slackening. This has not yet affected the rate of steel production to any material extent.

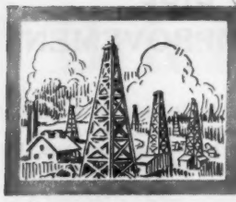
Automobile production by several of the prominent companies has begun to decrease in the last week or two, but there are some increases by other companies which partially offset. Steel orders from the automobile industry have decreased rather markedly, presaging further decrease in automobile production, and there have been some suspensions of deliveries.

There is an increase in demand for plates and other steel to fill freight car orders booked at intervals. There has not been much car buying in the last few weeks, outside of 4,000 cars just ordered by the Baltimore & Ohio, but orders placed earlier in the year were for quite extended delivery, and building of cars is now more active. There are heavier deliveries of steel to the fabricating shops as fabricated structural steel lettings have run exceptionally heavy this year. The agricultural implement works seem to be taking as much steel as formerly, and to have no prospect of any material decrease in operations in the summer, whereas formerly that industry ended its season July 1 and did not begin the new season very actively until about September 1. In tin plate there has been a little slackening in pressure for deliveries, as practically all the crops are late in planting and this may reduce the total packs besides deferring the maturity. The leading interest has decreased its tin plate production about 10 per cent when sometimes there is an increase at this time of year.

Altogether steel is not giving as good an account of itself as formerly, but it remains much more active than a year ago. The best guess seems to be that there will be no marked summer lull, but rather a gradual relaxation over a period of months from the tense condition of the last few months, when consumers were not getting as prompt deliveries as they were calling for, although perhaps all the deliveries they actually needed.

BRADFORD GAS CO. ABSORBED

The Bradford Gas Co., which operated in McKean County, Pennsylvania, has been acquired by the United Natural Gas Co. and the Manufacturers Gas Co. The new owners will divide the property. It is understood the Manufacturers Gas Co. will acquire that part of the main line running between Bradford and a point near Dallas. The United Natural Gas Co. will obtain the balance of the main line from Dallas to Coryville, where a junction with the North Penn line exists.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	June 4		May 28		May 21	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.08½	.08¾	.08⅝	.08⅝	.07⅝	.07¾
56-58 450 endpoint	.08½	.08¾	.08⅝	.08⅝	.07⅝	.07¾
58-60 450 endpoint	.08⅝	.08¾	.08½	.08¾	.07⅝	.07¾
*58-60 437 endpoint (U. S. Motor)	.0925		.0911		.0788	
*60-62 437 endpoint	.0938		.0910		.0812	
*60-62 400 endpoint	.0969		.0950		.0825	
*64-66 375 endpoint	.0975		.0975		.0855	
68-70 360 endpoint	.09½	.10	.09½	.09¾	.08½	.08⅝
64-66 437 endpoint (blend)	.08½	.08¾	.08½	.08¾	.07¾	.08

*Weighted average prices June 3, May 27 and 20 as reported by representative refiners. Sales to jobbers only.

NORTH TEXAS—						
56-58 450 endpoint	.08½	.08¾	.08¼	.08½	.07½	.07⅝
58-60 450 endpoint	.08½	.08¾	.08¼	.08½	.07½	.07⅝
58-60 437 endpoint (U. S. Motor)	.08⅞	.09¼	.08½	.08¾	.07⅝	.07¾
60-62 400 endpoint	.09⅛	.09¼	.08¾	.09	.07¾	.07⅞
64-66 390 endpoint	.09¼	.09⅜	.09	.09⅛	.07⅞	.08⅛
64-66 375 endpoint	.09½	.09⅝	.09¼	.09⅜	.08⅛	.08¼
68-70 360 endpoint	.09⅝	.09¾	.09⅜	.09½	.08¼	.08½
64-66 437 endpoint (blend)	.08½	.08¾	.08¼	.08½	.07½	.07⅝
***NORTH LOUISIANA**						
58-60 437 endpoint (U. S. Motor)	.09½	.09¾	.09½	.09¾	.08¼	
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.09½	.09¾	.09½	.09¾	.08¼	
PENNSYLVANIA—						
52-54 Naphtha	.08½	.09	.08½	.09	.08½	.09
54-56 Naphtha	.09¼	.09½	.09¼	.09½	.08¾	.09
58-60 Gasoline	.10	.10½	.10	.10½	.09½	.09¾
60 Gasoline	.10¼	.10½	.10¼	.10½	.09½	.09¾
62 Gasoline	.10½		.10½		.09¾	.10
64 Gasoline	.10½	.10¾	.10½	.10¾	.10¼	.10½
68-70 350 endpoint gasoline	.11¼	.11½	.11¼	.11½	.11¼	.11½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.08½	.08¾	.08½	.08¾	.07½	
56-58 450 endpoint	.08½	.08¾	.08¾	.09	.07½	.07⅝
58-60 437 endpoint (U. S. Motor)	.09	.09¼	.09	.09¼	.08	.08¼
60-62 400 endpoint	.09¼	.09½	.09¼	.09½	.08¼	.08⅜
64-66 375 endpoint	.09⅜	.10	.09½	.09¾	.08¼	.08½
68-70 360 endpoint	.09¾	.10	.09¾	.10	.08½	.08¾
64-66 437 endpoint (blend)	.08⅞	.09⅛	.09	.09⅛	.07⅞	.08
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

*Louisiana, Arkansas, Mississippi, East Texas delivery.

NATURAL GASOLINE

	June 4		May 28		May 21	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07½	.07⅝	.07¾		.06¾	.07
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07½	.07⅝	.07¾		.06¾	.07
Grade B, 76-83.9, 375 e.p., rec. 85%	.07¼		.07½		.06¼	.06½
Grade BB, 84-92, 375 e.p., rec. 85%	.07¼		.07½		.06¼	.06½
Grade C, 80-90, 375 e.p., rec. 78%	.07	.07¼	.07¼		.06	.06¼
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07½	.07⅝	.07¾		.06¾	.07
Grade AA, 80 87.9, 375 e.p., rec. 90%	.07½	.07⅝	.07¾		.06¾	.07
Grade B, 76-83.9, 375 e.p., rec. 85%	.07¼		.07½		.06¼	.06½
Grade BB, 84-92, 375 e.p., rec. 85%	.07¼		.07½		.06¼	.06½
Grade C, 80-90, 375 e.p., rec. 78%	.07	.07¼	.07¼		.06	.06¼
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.08		.08	.08¼	.07½	.07¾
Grade BB, 84-92, 375 e.p., rec. 85%	.07¾		.07¾	.08	.07¼	.07½
Grade C, 80-90, 375 e.p., rec. 78%	.07½		.07½		.07	
CALIFORNIA—						
75-78, 375-390 endpoint	.08	.08½	.08	.08½	.08	.09
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07½		.07¾	.08	.06¾	.07
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07½		.07¾	.08	.06¾	.07
Grade B, 76-83.9, 375 e.p., rec. 85%	.07¼		.07½		.06¼	.06½
Grade BB, 84-92, 375 e.p., rec. 85%	.07¼		.07½		.06¼	.06½
Grade C, 80-90, 375 e.p., rec. 78%	.07¼		.07¼		.06	.06¼

BURNING OIL

	June 4		May 28		May 21	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.05⅞	.06	.05½	.05¾	.05½	.05⅝
42-44 water white kerosene	.06⅜	.06½	.06	.06¼	.06	.06⅛
***NORTH LOUISIANA—**						
41-43 water white kerosene	.06¾		.06¾	.07	.06¾	.07
NORTH TEXAS—						
41-43 water white kerosene	.05⅝	.05¾	.05½	.05⅝	.05¼	.05⅝
40-42 water white kerosene	.05½		.05¼		.05⅛	
***ARKANSAS—**						
41-43 water white kerosene	.06¾		.06¾	.07	.06¾	.07
PENNSYLVANIA—						
43 Kerosene prime white	.06¾	.07	.06¾	.07	.06¾	.07
45 Kerosene water white	.06¾	.07	.06¾	.07	.07	.07¼
46 Kerosene water white	.07	.07¼	.07	.07¼	.07⅜	.07⅝
47 Kerosene water white	.07½	.07¾	.07½	.07¾	.08	.08¼
300 Mineral Seal	.07¼	.07½	.07¾	.08	.07¾	.08
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.05¾	.06½	.05¾	.06½	.06	.06½
Engine distillate, 43-44, 445 endpoint	.08	.08¾	.08	.08¾	.08	.08¾
Engine distillate, 42-44, 480 endpoint	.07½	.08¼	.07½	.08½	.07½	.08¼
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.05¾	.06	.05¾	.06	.05½	.05¾
42-44 water white kerosene	.06	.06¼	.06	.06¼	.06	.06¼
GULF COAST (Export)—						
41-43 prime white	.07¾		.07¾		.07¾	
41-43 water white	.08¾		.08¾		.08¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	June 4		May 28		May 21	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.55	.50	.55	.47½	.55
20-22 Fuel Oil, per bbl.	.55	.60	.55	.60	.52½	.57½
22-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.55	.60
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.60	.65
26-30 Fuel Oil, per bbl.	.82½	.87½	.82½	.87½	.80	.85
28-30 Fuel Oil, per bbl. (industrial)	.87½	.90	.87½	.90	.82½	.85
32-36 Gas Oil (industrial)	.02⅜	.02½	.02⅜	.02½	.02⅜	.02½
32-36 Gas Oil (straw color)	.02⅝	.02¾	.02⅝	.02¾	.02½	.02⅝
36-38 Distillate	.03	.03⅛	.03	.03⅛	.03	.03⅛
38-40 Straw Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
NORTH TEXAS—						
Below 20 Fuel Oil	.60	.65	.60	.65	.60	
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	
32-36 Gas Oil (straw)	.02⅜	.02½	.02⅜	.02½	.02⅜	.02½
38-40 Straw Distillate	.03¼		.03¼		.03¼	
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.75		.75		.75	
30-32 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
***ARKANSAS—**						
33-36 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
30-32 Gas Oil	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
16-22 Refinery Fuel Oil, per bbl.	.75		.75		.75	
GULF COAST (South Texas)—						
Gas Oil	.03¾	.04	.03½	.03¾	.03½	.03¾
Bunker C Fuel (cargo lots), per bbl.	.80	.85	.80	.85	.75	.85
Bunker C Fuel (small lots)	.95	1.00	.95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04½	.04¾	.04¾	.04⅞	.04¾	.05
36-40 Fuel Oil	.04¾	.05	.05	.05¼	.05¼	.05½
CALIFORNIA—						
33-36 Distillate	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾
26-32 Distillate	.03½	.04	.03½	.04	.03½	.04
15-20 Fuel Oil, Bunker (at tide water)	.65	.85	.65	.85	.65	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.60	.65	.57½	.62½	.55	.60
18-22 Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
28-30 Fuel Oil	.85	.90	.82½	.87½	.85	.90
32-36 Gas Oil (zero)	.02½	.02⅝	.02½	.02⅝	.02⅜	.02½
32-36 Gas Oil (industrial)	.02¼	.02½	.02¼	.02½	.02¼	.02⅜
36-38 Distillate	.03¼	.03⅜	.03		.03	
38-40 Straw Distillate	.03⅜	.03⅝	.03⅜	.03⅝	.03⅛	.03¼

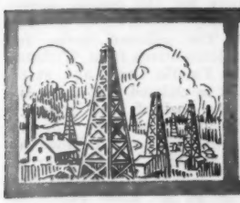
*Louisiana, Arkansas, Mississippi, East Texas delivery.

LUBRICATING OIL AND WAX

	June 4		May 28		May 21	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
150 vis., 3 color, 20-25 cold test	.07¾	.08	.07¾	.08	.07¾	.08
150 vis., 4 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
180 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
180 vis., 4 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 5 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
280 vis., 3 color, 25-30 cold test	.15¾	.16	.15¾	.16	.15¾	.16
280 vis., 4 color, 25-30 cold test	.14¾	.15	.14¾	.15	.14¾	.15
280 vis., 5 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
Cylinder Stocks:						
600, steam refined, light green	.14½	.15	.14½		.13	.15
600, steam refined, dark green	.13½		.13½		.12	
190-200 vis., D color Bright Stock	.40	.41	.40	.41	.40	
150-160 vis., D color Bright Stock	.35	.36	.35	.36	.35	
150-160 vis., E color Bright Stock	.33	.34	.33	.34	.33	
Waxes:						
124-126 White Crude Scale Wax	.02½	.02¾	.03		.03	
PENNSYLVANIA—						
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¾	.08	.07¾	.08	.07¾	.08
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.27	.27½	.27	.27½	.27	.27½
200, 3 color	.29	.30	.29	.30	.28	.29
220, 3 color	.31	.31½	.31	.31½	.31	.31½
600, steam refined	.33½	.34	.33½	.34	.33½	.34
635, steam refined	.36	.37	.36	.37	.37	.39
650, steam refined	.39	.39½	.39	.39½	.39	.39½
600, Pennsylvania Flash	.41½	.42	.41½	.42	.41½	.42
630, Pennsylvania Flash	.44	.45	.44	.45	.44	.45
600, E filtered	.36½	.37	.36½	.37	.36½	.37
600, D filtered	.43½	.44	.43½	.44	.43½	.44
Pennsylvania Bright Stock	.52	.54	.52	.54	.52	.54
*122-124 White Crude Scale Wax	.03¾		.03¾		.03¾	
*124-126 White Crude Scale Wax	.04		.04		.04	

*At New York.

No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09	.10	.09	.10	.09	.10
No. 3 color, 300 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 4 color, 750 vis., pale oil	.14	.14½	.14	.14½	.14	.14½
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12½	.13	.12½	.13	.12½	.13
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12
No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13
No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.14¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	June 4		May 28		May 21	
Gasoline, U. S. Motor, 58-60, 437	.10		.10		.10	
Kerosene, water white, 41-43	.08		.08		.08	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
†Fuel Oil, Diesel 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.05	.05½	.05	.05½	.05	.05½
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.11½		.11½		.11½	
250 red Paraffin Oil	.11		.11		.11	
225 red Paraffin Oil	.09½		.09½		.09½	
200 red Paraffin Oil	.09		.09		.09	
Refined Wax:						
120-122 a.m.p., per lb.	.03⅝		.03⅞		.03⅞	
125-127 a.m.p., per lb.	.04¼		.04⅜		.04⅜	
130-132 a.m.p., per lb.	.04¾		.04⅞		.04⅞	
133-135 a.m.p., per lb.	.06⅛		.06¼		.06¼	
135-137 a.m.p., per lb.	.06½		.06½		.06½	
Petrolatum in barrels, carload lots, per pound:						
Dark green	.02		.02		.02	
Amber	.03½		.03½		.03½	
Extra amber	.03¾		.03¾		.03¾	
Cream	.06½		.06½		.06½	
Lily white	.07½		.07½		.07½	
Snow white	.08½		.08½		.08½	

*Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	June 4		May 28		May 21	
Kerosene, prime white	.08		.08		.08	
Kerosene, water white	.09		.09		.09	
600, steam refined cylinder stocks, in bbls.	.43	.44	.43	.44	.43	.44
635, steam refined	.45	.46	.45	.46	.45	.46
650, steam refined	.50	.51	.50	.51	.50	.51
600, Pennsylvania Flash	.53	.54	.53	.54	.53	.54
630, Pennsylvania Flash	.58	.59	.58	.59	.58	.59
600, Warren E	.45	.46	.45	.46	.45	.46
600, Oil City E	.44	.45	.44	.45	.44	.45
Light 140-150 Bright Stocks	.63	.68	.63	.68	.63	.68
Dark 140-150 Bright Stocks	.61	.66	.61	.66	.61	.66

LOS ANGELES EXPORT PRICES

	June 4		May 28		May 21	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07	.07½	.07	.07½	.07	.07½

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)* ..... .80
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* .....Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler, Mitchell, and Glasscock (See gravity table).
Chalk† ..... .65

*Includes Howard County and Westbrook Fields.
†Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (May 20, 1929) ..... $ .85
Smackover, 24 gravity and above (May 20, 1929) 1.00
Cotton Valley (Below 36 gravity May 22) ..... .85
Bellevue (May 29, 1929) 1.30
Urania (May 21, 1929) 1.10
East El Dorado (May 22, 1929) ..... .85
Other fields .....See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

Grade A (May 20)* $1.30
Grade B .....See gravity table
Jennings, La. (March 14)† $1.05
Saratoga, Batson, Dayton (March 14, 1927)‡ 1.30
Markham (March 14)‖ 1.00
High Island (December 14)¶..... 1.00

*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. ‖The Texas Company.
¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective May 21, 1929)

Rock Creek, Wyo. $1.40
Salt Creek .....See gravity table
Big Muddy 1.43
Grass Creek, heavy (July 27, 1928)..... .90
Grass Creek, light 1.65
Mule Creek 1.20
Elk Basin 1.65
Lance Creek 1.68
Poison Spider (March 14, 1927)..... 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10
Osage 1.65
Lost Soldier (contract, May 22) 1.05
Hamilton Dome (March 14, 1927) ..... .85
Greybull 1.65
Cat Creek (Montana) (July 27, 1928) .. 1.48
Sunburst (Montana) (May 23, 1929) ... 1.75
Torchlight 1.65
Hogback (New Mexico) (July 27, 1928) 1.70

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTH-WESTERN TEXAS

Luling (May 2)* .....$ .90
Mirando (May 20, 1929)† ..... .90
Salt Flat (May 20, 1929)‖ 1.25
Rockdale-Minerva (April 15):
Below 28 gravity 1.25
28-38.9 gravity 1.27
39-39.9 gravity 1.29
40 and above 1.31
Thrall‡ ....

(Continued on Page 152)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla., Kans. N. C. Tex.	2 No. La. and Arkansas	3 Crane, Upton, Winkler, Crockett, Howard, Pecos, Texas crudes, and Lea, N. Mex.	4 Stephens, Ark.	5 Wheeler (Texas Panhandle)	6 Gray County (Texas Panhandle)	7 Carson and Hutchinson (Texas Panhandle)	8 Salt Creek, Wyo.	9 Grade B & Light Crude (G. Coast)	10 Somerset (South Central Texas)
24 and above	....	....	....	....	....	....	....	....	....	....
Below 24	....	....	....	....	....	....	....	....	....	....
Below 25	.85	....	.70	....	....	....	....	....	1.15	....
25 to 25.9	.90	....	.74	....	....	....	....	....	1.18	....
26 to 26.9	.95	....	.78	....	....	....	....	....	1.21	....
27 to 27.9	1.00	....	.82	....	....	....	....	....	1.24	....
Below 28	....	1.00	....	.90	.90	.90	.90	....	....	....
28 to 28.9	1.05	1.05	.86	.94	.90	.90	.90	....	1.27	....
29 to 29.9	1.10	1.10	.90	.98	.90	.95	.90	1.10	1.30	....
30 to 30.9	1.15	1.15	.94	1.02	.95	1.00	.90	1.15	1.33	....
31 to 31.9	1.20	1.20	.98	1.06	1.00	1.05	.90	1.20	1.36	....
32 to 32.9	1.25	1.25	1.02	1.10	1.05	1.10	.95	1.25	1.39	1.05
33 to 33.9	1.30	1.30	1.06	....	1.10	1.15	1.00	1.30	1.42	1.07
34 to 34.9	1.35	1.35	1.10	....	1.15	1.20	1.05	1.35	1.45	1.09
35 to 35.9	1.40	1.40	1.14	....	1.20	1.25	1.10	1.40	1.48	1.11
36 to 36.9	1.45	1.45	1.18	....	1.25	1.30	1.15	1.45	....	1.13
37 to 37.9	1.50	1.50	....	....	1.30	1.35	1.20	1.50	....	1.15
38 to 38.9	1.55	1.55	....	....	1.35	1.40	1.25	....	....	1.17
39 to 39.9	1.60	1.60	....	....	1.40	1.45	1.30	....	....	....
40 to 40.9	1.65	1.65	....	....	1.45	1.50	1.35	....	....	....
41 to 41.9	1.70	1.70	....	....	1.50	1.55	1.40	....	....	....
42 to 42.9	1.75	1.75	....	....	1.55	1.60	1.45	....	....	....
43 to 43.9	1.80	1.80	....	....	1.60	1.65	1.50	....	....	....
44 and above	1.85	1.85	....	....	1.65	1.70	1.55	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule May 20, 1929, making price below 26 gravity 70 cents per barrel, 26-26.9 gravity 75 cents, 27-27.9 gravity 85 cents, 28-28.9 gravity 90 cents, 29-29.9 gravity 95 cents, 30-30.9 gravity $1.05, and 31-31.9 gravity $1.15, with balance of the price schedule as shown above.

Oklahoma—Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, May 20.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona and Moran, Prairie Oil & Gas Co., Sinclair Oil Refining Co., Humble Oil & Refining Co., The Texas Company and Gulf Refining Co., May 20.

Kansas—Prairie, Sinclair, The Texas Company and Carter, May 20.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer and El Dorado only], May 20, Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule applies to Pine Island, Haynesville, Bull Bayou, Louisiana and El Dorado, Ark., light crude.

Column 3—Humble Oil & Refining Co. and Magnolia Petroleum Co., May 20.

Column 4—Atlantic Oil Producing Co., Louisiana Oil & Refining Corp., May 21, 1929.

Columns 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., May 20, 1929.

Column 8—Midwest Refining Co., May 20, 1929. All crude over 37 gravity $1.50 per barrel.

Column 9—Humble Oil & Refining Co., May 20, 1929 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 16, 1929)

Gravity—	1 Salt Lake, Potrero, Newport, Long Beach, Summerland, Lawndale Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Signal Hill, Seal Beach, Huntington Beach, Athens, Inglewood, Rosecrans-Domingues, Watsonville	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt Ventura, Rincon,	9 Ventura Ave.	10 Elwood Terrace
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	....
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	....
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.94	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.98	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	1.02	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.22	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	1.34	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	1.40	1.16
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	1.46	1.22
36 to 36.9	1.59	....	....	....	1.50	....	....	....	1.52	1.28
37 to 37.9	1.65	....	....	....	1.55	....	....	....	1.58	1.34
38 to 38.9	1.71	....	....	....	1.60	....	....	....	1.64	1.40
39 to 39.9	1.77	....	....	....	1.65	....	....	....	1.70	1.46
40 to 40.9	1.83	....	....	....	....	....	....	....	1.76	1.52
41 to 41.9	1.89	....	....	....	....	....	....	....	1.82	1.58
42 to 42.9	1.95	....	....	....	....	....	....	....	1.88	1.64

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1929. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

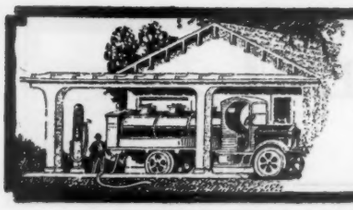
Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity, Domingues and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns June 4.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago dist.†..	16.0	17.0	....	13.0
Decatur, Ill. ...	16.2	17.2	...	13.1
E. St. Louis ...	15.4	16.4	...	12.2
Joliet	16.4	17.4	...	13.3
Peoria	16.2	16.0	...	13.1
Quincy	16.2	17.2	...	12.9
Davenport, Ia..	19.5	20.5	3.0	13.3
Des Moines ..	19.5	20.5	3.0	13.3
Keokuk	19.5	20.5	3.0	13.3
Sioux City	19.1	20.1	3.0	12.9
Duluth, Minn..	20.5	21.5	3.0	13.9
Mankato	20.1	21.1	3.0	13.7
Minneapolis ...	20.2	21.2	3.0	13.9
LaCrosse, Wis..	19.2	20.2	2.0	14.0
Milwaukee	18.1	19.1	2.0	12.9
Madison	18.3	19.3	2.0	13.1
Detroit, Mich...	19.8	20.8	3.0	14.7
Grand Rapids..	19.7	20.7	3.0	14.6
Saginaw	19.9	20.9	3.0	14.8
Evansville, Ind.	20.0	21.0	4.0	14.0
Fort Wayne ..	20.4	21.4	4.0	14.4
Indianapolis ..	20.2	21.2	4.0	14.2
South Bend ...	20.4	21.4	4.0	14.4
Fargo, N. D...	20.9	21.9	3.0	15.9
Huron, S. D. ..	21.3	22.3	4.0	14.7
Sioux Falls ...	20.1	21.1	4.0	14.4
K. C., Mo.* ...	18.9	19.9	3.0	11.6
Springfield* ...	18.8	19.8	3.0	12.5
St. Louis*	17.9	18.9	2.5	12.3
St. Joseph	18.5	19.5	3.0	12.2
Wichita, Kans..	17.8	18 8	3.0	11.8
Bartlesville, Ok.	16.5	18.5	3.0	11.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	15.7	12.9
V. M. & P. Naphtha	17.2	13.9
Cleaner's naphtha	17.0	14.9
Stanisol	18.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex. ...	13.0	17.0	2.0	13.0
Fort Worth ...	13.0	16.0	2.0	13.0
Houston	14.0	18.0	2.0	13.0
San Antonio ..	13.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	15.0	19.0	2.0	13.0
Muskogee, Ok.*	15.0	19.0	3.0	13.0
Okla. City* ...	15.0	19.0	3.0	12.0
Tulsa*	13.0	17.0	3.0	10.0
Ft. Smith, Ark.	15.0	19.0	5.0	12.0
Little Rock ...	20.0	24.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo...	18.0	21.0	4.0	15.5
Pueblo	18.0	21.0	4.0	15.5
Grand Junction	22.5	25.5	4.0	19.0
Casper, Wyo. ..	21.0	24.0	4.0	14.0
Cheyenne	22.0	25.0	4.0	15.5
Butte, Mont. ..	25.5	28.5	5.0	20.0
Helena	25.5	28.5	5.0	20.0
Salt Lake, Utah	22.0	25.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.6	17.0
Boise, Idaho ...	24.5	27.5	4.0	19.0
Twin Falls	24.5	27.5	4.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa..	16.0	*21.0	...	14.0
Philadelphia ..	16.0	*21.0	...	14.0
Scranton	16.0	*21.0	...	14.0
Allentown	16.0	*21.0	...	14.0
Altoona	16.0	*21.0	...	14.0
Erie	13.0	*21.0	...	14.0
Dover, Del. ...	19.0	21.0	3.0	14.0
Wilmington ...	19.0	21.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	15.0	16.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven ...	17.0	18.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y...	15.0	16.0	2.0	15.0
New York* ...	19.0	21.0	2.0	15.0
Buffalo	16.0	17.0	2.0	14.0
Rochester	16.0	17.0	2.0	14.0
Syracuse	16.0	17.0	2.0	15.0
Boston, Mass...	18.0	20.0	2.0	15.0
Augusta, Me...	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt..	19.0	20.0	4.0	15.0

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga. ..	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	23.0	4.0	16.5
Savannah	21.0	22.0	4.0	15.5
Birm'ham, Ala..	21.0	23.0	4.0	16.0
Mobile	21.0	23.0	4.0	15.0
Montgomery ..	22.0	24.0	4.0	16.5
Clarks'le, Miss..	19.0	21.0	5.0	12.5
Jackson	17.0	19.0	5.0	13.0
Natchez	20.5	22.5	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla..	22.0	24.0	5.0	14.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky..	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	18.0	19.0	5.0	15.5
Catlettsburg ..	18.0	19.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco..	19.0	22.0	3.0	15.5
Los Angeles ..	18.5	22.5	3.0	15.5
Reno, Nev. ..	24.0	26.0	4.0	19.0
Portland, Ore..	19.5	23.5	3.0	16.5
Seattle, Wash..	18.5	22.5	2.0	16.5
Tacoma	18.5	22.5	2.0	16.5
Spokane	22.5	26.5	2.0	20.5
Phoenix, Ariz..	18.0	22.0	4.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	20.25	22.25	4.0	13.25
McCook	21.75	23.75	4.0	14.75
Norfolk	20.75	22.75	4.0	13.75
N. Platte	21.75	23.75	4.0	14.50
Scottsbluff	21.75	23.75	4.0	14.25

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlantic City ..	14.0	18.0	2.0	13.0
Newark, N. J...	16.0	20.0	2.0	13.0
Annapolis, Md..	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	12.0
Cumberland ...	18.0	22.0	4.0	13.0
Washington ...	16.0	20.0	2.0	12.0
Danville, Va. ..	19.0	23.0	5.0	12.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Charles'n, W.Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg ..	18.0	20.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	19.0	23.0	5.0	13.0
Hickory	19.0	23.0	5.0	13.0
Mt. Airy	19.0	23.0	5.0	13.0
Salisbury	18.0	20.0	5.0	13.0
Charleston, S.C.	20.0	24.0	6.0	13.0
Columbia	20.0	24.0	6.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points* ..	20.0	21.0	4.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.*	16.5	20.5	5.0	16.0
Baton Rouge ..	17.0	21.0	4.0	14.5
Alexandria	18.0	22.0	4.0	16.0
Lafayette†	19.0	23.0	5.0	14.0
Lake Charles†.	19.5	23.5	5.0	16.0
Shreveport	18.5	22.5	4.0	15.0
Knoxv'le, Tenn.	22 0	26 0	5.0	16 0
Memphis	18.0	22.0	5.0	12.5
Chattanooga ..	21.5	25.5	5.0	16.0
Nashville	19 0	23 0	5 0	16 0
Bristol	22.0	25.0	5.0	14.0
Lit. Rock, Ark..	20.0	24.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.
†Includes 1-cent parish tax.

TANK WAGON CHANGES

May 25—Standard Oil Co. of Louisiana advanced tank wagon and station prices 1 cent throughout their territory.

May 30—Continental Oil Co. advanced the gasoline tank wagon and station prices 1 cent to 21 and 24 cents at Albuquerque, N. M.

CRUDE PRICE CHANGES

May 29—Standard Oil Co. of Louisiana advanced Bellvue, La., crude 10 cents to $1.30.

June 3—Pure Oil Co. advanced Midland, Mich., crude 10 cents to $1.70.

REFINERY IS BURNED

CHATHAM, Ontario, June 1.—Fire at the Maple Leaf refinery at Coutts, Alberta, a few days ago did $50,000 damage to the plant, three men being seriously burned. The fire centered in three stills recently erected. R. M. Barkerville, president of the Western Oil & Fuel Co., which owns a large interest in the Coutts plant, states that it was fully insured. Service to customers will be continued pending early reconstruction. The plant operated on Montana crude.

GREAT NORTHERN CONTRACTS

The Great Northern Railroad has issued contracts for 275,000 barrels of oil per month at an average price of $1.20 per barrel. The railroad has allotted the sum of $2,664,000 for the purchase of a fuel oil supply for the coming season. This oil is mainly contracted in the Sunburst Field. The railroad burns fuel oil on all its locomotives from Williston, N. D., to the Pacific Coast and at the above price, it is claimed that there is a saving over the cost of coal, besides a distinct betterment in service. The purchasing department of the railroad announced that the total purchase for the year will run to about 3,300,000 bbls. and is expected to cost about $4,000,000.

HOOVER PERMIT POLICY ATTACKED IN COURT

WASHINGTON, D. C., June 3.—President Hoover's oil permit policy has been taken into court by the filing in the District of Columbia Supreme Court of a mandamus suit by Ethel M. McLennan of Sacramento, Calif., challenging the legality of Secretary Wilbur canceling her application for a permit to prospect for oil and gas without a hearing.

Justice Stafford directed Secretary Wilbur to appear June 17 and show cause why the writ sought should not be issued.

The Interior Department on March 12 ordered that all pending applications for permits on government land be returned. Department officials held the leasing act gave the department permission to grant permits, but it was a matter of discretion with the Secretary when and how such permits are granted.

Department officials believe if the Secretary is restrained the conservation of oil and gas on government land would be impossible. If the Government loses the suit, department officials say 5,000 applications which have been cancelled would be open to reinstatement.

CRUDE OIL PRICES

(Continued from Page 151)

Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

EASTERN STATES
Joseph Seep Purchasing Agency

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (May 22, 1929).	1.80
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (May 22, 1929)	1.90
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (May 22, 1929)....	1.80
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective May 21, 1929)

Lima	$1.80
Wooster	1.90
Illinois	1.75
Indiana	1.57
Princeton	1.75
Plymouth	1.28
Waterloo (November 17, 1926)	1.35
Western Kentucky	1.83
Dundee, Mich. (May 23, 1929)‖	1.10
Midland, Mich. (June 3, 1929)*	1.70
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 15)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (May 1, 1929)§	1.65
Oil Springs (Canada)¶	2.27
Petrolia (Canada)¶	2.26

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
‖Posted by Standard of Indiana for boat shipment.

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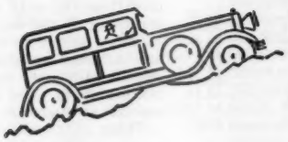

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Oil Securities Regaining Lost Ground

With Strengthening of General Market Petroleum Shares Recover from Slump Which Had Carried Many Issues to Low Levels

With the strengthening of the general market which set in on Monday of this week the oils, which had behaved well throughout the depression that carried even some of the best securities to low levels for the year, began a recovery which resulted in some issues regaining virtually all the ground they had lost. On Tuesday Atlantic Refining sales were made at 68¾, Pan American P. & T. B. at 62⅞ and Sinclair at 40¼. It is reported that important interests desiring to add to their holdings of Atlantic Refining and Simms Petroleum had found only moderate supplies available when they appeared as buyers and that this was a factor in the upward movement of these issues. Buoyancy in the trading in Prairie Pipe was attributed in part to a report that the company in July will have completed the biggest half year's business in its history.

Humphreys Corp.

Humphreys Corp., which holds acreage in various oil producing areas in Texas and Louisiana, has called meeting of stockholders in Dallas, Tex., to vote on proposed increase in authorized capital stock to 600,000 no-par shares, from 400,000.

If the increase is approved, directors will offer stockholders of record June 8 rights to 137,775½ additional shares in the ratio of one share at $10 to each two shares held. Subscriptions will be payable June 25 and stock warrants will be issued June 10. Unsubscribed stock has been underwritten.

The additional funds will be used to meet maturing obligations and provide further working capital.

Marland Oil

Marland Oil Co. has called a special meeting of stockholders for June 18 to vote on the plan of reorganization and the agreement whereby Marland will acquire the assets of the Continental Oil Co. The Continental deal involves the issuance of 2,317,266 new shares by Marland to exchange for the assets of Continental Oil Co. and the change of name by Marland to Continental Oil Co., while the present Continental Oil Co. will be dissolved. Marland Oil Co. has also proposed to amend its certificate of incorporation to provide for increasing its authorized stock from 2,400,000 to 6,000,000.

Mountain Producers

Statement of Mountain Producers Corp. and subsidiary as of December 31, 1928, shows total assets of $30,753,092 and surplus of $12,286,745. Current assets amounted to $9,466,407 and current liabilities $1,348,144.

Consolidated balance sheet of Mountain Producers Corp. and Wyoming Associated Oil Corp. as of December 31, 1928, follows:

Assets: Cash and call loans $2,390,949; U. S. bonds and notes, $1,182,825; municipal and other bonds, $99,000; accounts receivable, $483,363; notes receivable, $65,847; interest in crude storage at cost, $5,244,423; contracts receivable, $58,404; deferred charges, $22,632; oil lands, leases, equipment, etc., after depreciation, $21,205,649; total $30,753,092.

Liabilities. Capital stock, (par $10), $16,821,820; accounts payable, $245,513; dividends payable, $1,102,631; taxes payable, $52,967; reserve for taxes and contingencies, $243,416; surplus $12,286,745; total, $30,753,092.

Shell Union Corp.

Shell Union Oil Corp. and subsidiaries report for quarter ended March 31, 1929, profit of $1,458,577 after interest, depreciation, depletion, etc., but before federal taxes, compared with $1,551,167 in first quarter of 1928. Stock standing amounts to 13,000,000 shares of no-par common stock.

Profit of Shell Union Pipe Line Corp. for first quarter of 1929, was $3,105,628 before federal taxes.

Standard of New York

At annual stockholders meeting of Standard Oil Co. of New York retiring directors were re-elected. Constitution and by-laws were amended fixing minimum of 5 and maximum of 18 directors instead of 14 as at present. Frederic Ewing and Richard P. Tinsley were nominated for election at next directors meeting.

Standard of Kentucky

Standard Oil Co. of Kentucky declared the regular quarterly dividend of 40 cents, payable June 29 to stock of record June 15.

Anglo American Oil

Net profit of Anglo American Oil Co. for year ended December 31, 1928, was £432,693, after depreciation, interest, income taxes, etc., comparing with £208,213 in 1927.

Eagle Oil Transport

Eagle Oil Transport Co., Ltd., reports, for the year ended December 31, 1928, net profit of £37,473, after charges, depreciation reserve, etc. After 8 per cent preference dividends, deficit for the year was £27.

Salt Creek Consolidated

Salt Creek Consolidated Oil Co. declared its regular quarterly dividend of 10 cents, payable July 1 to stockholders of record June 15.

Mexican Seaboard

Report of Mexican Seaboard Oil Co. and International Petroleum Co. and domestic subsidiaries for quarter ended March 31, 1929, shows profits of $25,945 after interest, drilling expenses, etc., but before depletion, comparing with loss of $427,254 in first quarter of 1928.

Cia Internacional de Petroleo y Oleoductos S. A., pipe line subsidiary of Mexican Seaboard Oil, reports for first quarter of 1929, net loss of $14,975 after expenses and amortization, compared with net loss of $10,305 in March quarter of previous year.

Honolulu Consolidated

Honolulu Consolidated Oil Co. declared regular quarterly dividend of 50 cents, payable June 15 to stock of record June 5.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Jan. 26	57.44	April 6	58.26
Feb. 2	57.55	April 13	58.52
Feb. 9	55.28	April 20	58.46
Feb. 16	55.35	April 27	58.34
Feb. 23	54.92	May 4	59.13
March 2	56.43	May 11	59.75
March 9	55 96	May 18	59.30
March 16	58.63	May 25	57.73
March 23	58.52	June 1	56.45
March 30	58.57		

Humble Oil & Refining

Humble Oil & Refining Co. declared an extra dividend of 20 cents a share and the regular quarterly dividend of 30 cents payable July 1 to stockholders of record June 11.

Merger Plans Abandoned

The proposed merger of the Standard Oil Co. of New York and the Vacuum Oil Co., negotiations for which have been reported for several months, has been abandoned, according to the New York Herald-Tribune.

GAS OILS STRONGER IN COASTAL MARKET

HOUSTON, Tex., June 4.—With the exception of gas oils which were somewhat stronger no important changes were indicated in Gulf Coast refinery markets the past week. Gas oil Tuesday was being quoted strong at 4 cents for low sulphur content and cracking stock product although some other grades were available for 3¾ cents.

Neutrals so far have failed to absorb any of the price increase enjoyed by coastal crudes two weeks ago, contrary to custom. There have been few general advances but what have been followed by at least a quarter cent raise in lubricants for each 5-cent advance in crudes but this time the only effect was a general steadying of the neutral market. Efforts of a few sellers to boost their quotations one-half cent evidently have been unsuccessful with other refiners and marketers continuing to offer material on the spot market at precrude advance listings.

There still continues to be some competition in disposing of neutrals with concessions reported but this condition is somewhat improved following the crude advance. The fact that several sellers had cut their neutral listings a half cent the day preceding the crude advance is blamed to a large extent for the failure of prices to reflect an actual advance over listings of the preceding week.

The general neutral market, however, is considered slightly better than it has

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For week ended June 3 Sales	Open	High	Low	Last
$6.75	.45	2 1/16	.55	1½	.53	$5	Amer. Con. Oilfields	4,600	⅜	½	¼	¼
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	6,000	4¼	4¼	4	4
..	..	2¾	1	4½	2¼	$10	Argo Oil	1,800	2¾	2¾	2¼	2¼
85¼	60	40	20½	55	32¾	N.P.	British American	100	2⅜	2⅜	2⅜	2⅜
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	2,800	3⅝	3⅞	3¼	3½
..	..	58¾	40¼	90⅞	54	$20	Cities Service	41,000	29⅛	29⅞	28⅝	28⅞
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,000	98½	98½	98	98
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	400	9	9	9	9
3½	1¾	3⅞	1½	3¼	76	1	Colombia Syndicate	3,500	1⅛	1⅛	1	1
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	No sales.				
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	13,100	8½	8½	8	8⅛
..	..	3	.50	3¼	.76	N.P.	Crown Central	1,900	1¾	1¾	1½	1½
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	3,600	15	15⅛	14	14⅛
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	3,400	7⅜	8⅜	7	8⅛
..	..	16¾	4	21⅜	7½	N.P.	Derby Oil & Refining, pfd.	600	38	39	37¾	38⅛
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.				
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	10,600	172	172	165⅝	168
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	38,400	2⅛	2⅜	1⅝	1¾
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	400	2	2⅛	1⅞	2
12¼	5¾	10⅞	5½	9⅜	5½	25	Leonard Oil & Dev.	1,200	4	4⅛	4	4
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining Co.	400	31	32	31	32
46	30	59⅜	37	69⅛	48½	$25	Lone Star Gas	200	28⅞	29	28⅞	29
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	1,200	½	½	⅜	½
34	12½	52	12	48½	32	N.P.	Margay Oil	No sales.				
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	100	4¼	4¼	4¼	4¼
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	3,500	1	1	1	1
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	6,900	16½	17	16⅛	17
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	1,200	4	4	3½	4
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	1,400	5⅞	5⅞	5½	5½
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	1,600	11	11¼	10¾	10¾
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	1,400	2⅜	2⅜	2	2¼
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	6,900	6¾	7	6	6
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	No sales.				
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	No sales.				
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	3,000	5⅝	5⅝	5¼	5½
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	100	7	7	7	7
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	100	3¼	3¼	3¼	3¼
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	2,700	19	19	18⅛	18¾
6⅞	1¾	7	1¼	3½	1	5	Savoy Oil	No sales.				
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	No sales.				
25¾	7⅝	23¾	15	21¼	13½	10	Tidal Osage, nonvoting	No sales.				
92	63½	92	63½	93¼	75	100	Transcontinental, pfd.	300	101	101	100	100
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	1,200	4	4	3⅝	3⅞
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	300	5¼	5½	5⅛	5⅛
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	3,000	2⅛	2¼	2	2

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low		Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended June 3 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛	(sh)	922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	11,300	25¾	26⅛	24¼	25	
74	39⅞	82⅛	35⅛	85	51⅛	(sh)	209,180	N.P.	American Republics Corp.	.....	.....	5,200	48⅛	49	45⅛	49	
60	44¾	50¼	35	53⅜	37½		$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	40,000	43	43	40½	40½	— 2½
128⅜	97	131⅝	104	66⅜	50		50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	113,800	66¼	66¼	62⅝	64⅜	— 1⅜
33½	23½	35½	20¾	53	20		35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	52,000	43⅜	43⅜	41⅞	42	— ⅞
94½	50	96¾	65	94⅞	68		20,785,400	100	General Asphalt	.....	.....	15,800	81	82½	78¼	82	+ 1½
72	50¼	175¾	60⅛	167	79		25,000,000	100	Houston Oil	.....	.....	1,200	82	82	72½	75	— 7½
34	19⅝	32¾	17⅝	38⅜	21¾	(sh)	959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	13,100	35⅞	35⅞	35	35½	— 1½
12¾	7½	12⅛	7⅝	39⅝	9		8,203,080	$10	Indian Refining	.....	May 31, 24	61,100	43½	43⅞	34⅝	39¾	— 3⅝
25⅞	16½	37¾	20½	39⅛	27⅜	(sh)	3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	2,300	28	28	26	26	— 2¼
19⅞	12	18¼	10	19¾	9⅜	(sh)	1,237,078	N.P.	Louisiana Oil Refining	.....	.....	19,600	13½	14	12⅝	12¾	— ⅞
28	16½	22¾	12	25½	12½	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	1,600	14	14⅜	13	13⅛	— 2⅝
63⅜	49¼	58½	31	49¾	33	(sh)	2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	50,200	36	36	33⅛	34	— 2⅛
13¾	6	9¼	3	73	4⅝	(sh)	945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	51,800	45½	45½	36¼	38¾	— 9¼
37	20½	39⅜	25½	44½	25⅛	(sh)	1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	29,600	34⅞	35	33⅝	33⅝	— 1⅛
104¼	90	105	97	120½	103¼		$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜		24,298,850	10	Middle States	.....	July 1, 23	10,400	4	4⅛	3¾	4	— ⅛
76½	56⅛	65⅞	40⅛	54⅞	38¼		$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	300	56⅞	56⅞	55¾	55¾	— 4¼
78⅝	56⅞	66⅝	40¼	58⅞	37¾		121,097,900	50	Pan American P. & T. B.	.....	Nov. 15, 24	130,900	61½	61⅝	57½	59¼	— 2¼
46	30	37⅞	16¾	28⅜	15½	(sh)	400,000	N.P.	Pan American Western B.	.....	Jan. 30, 27	300	14½	14½	14½	14½	
32	4½	18⅞	8	21¾	11½	(sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	2,800	10½	10½	9½	10⅜	— ⅛
99⅜	51	83	54	108	70		$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	No sales.					
57⅜	40	60¼	36¼	53⅞	35¼	(sh)	2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	13,800	30⅞	40	38½	38½	— 1⅝
....	....	1⅛	⅛	5¼	⅛		$29,622,925	$25	Pierce Oil Corp.	.....	.....	9,400	2¼	2½	2¼	2¼	— ⅛
7	2¼	5½	2½	7	3½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	5,700	4⅝	4⅝	4⅜	4½	— ⅛
60¼	48	55½	45⅝	68	46		60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	10,900	57	57	55	55¼	— 1¾
137½	122½	190	130¾	280	172		$101,250,000	$25	Prairie Pipe	75cQ*	Mar. 31, 29	7,600	64¼	60⅞	58⅜	60	— ¾
20¾	11	33⅞	16¾	29⅞	16		$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	2,800	19	19⅜	18	18⅞	— ⅝
41¾	30¾	50	36⅞	49⅝	41		2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	10,000	42	42	41	41	— ¾
31	25¼	33½	25	31⅝	19		75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	29,900	28⅛	28¼	27⅞	27⅛	— ⅜
27½	22	28⅝	25⅜	56	23		47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	19,900	44⅛	44⅛	40½	42⅞	— 1½
57⅜	47⅜	54½	44¼	64	44⅝	(sh)	611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	3,600	52⅛	52⅛	51½	51½	
48⅝	40½	47⅞	41⅜	57½	40⅝	(sh)	£30,000,000	£1	Shell Transport & T.	$1.45	July 23, 28	No sales.					
31	24	31¾	24⅝	39¼	23¼	(sh)	20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	27,800	28½	29	27⅛	28⅝	+ ⅛
25⅝	15⅛	26⅜	14¼	27¼	18⅛		$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	17,000	29¾	31⅝	27	31	+ 1
24⅞	16¾	22⅜	15	46¾	17⅜	(sh)	4,501,915	N.P.	Sinclair Consolidated	.....	.....	182,400	40⅛	40½	37½	38⅛	— 1⅞
99½	90	104½	97	110	102½		$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	1,100	108	108	108	108	
37⅛	26⅝	37⅜	24⅛	42⅝	25		27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	26,100	41	41	39⅛	40¾	— ¼
63⅝	51½	60¾	50⅜	80	53	(sh)	12,594,098	N.P.	Standard Oil of California	65½Q	Dec. 15, 28	21,000	75⅛	75⅛	72½	73⅛	
46⅜	37½	41⅜	35⅛	59⅜	37¾		$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	71,700	57	57¾	55¼	57¼	— ¼
47¼	30⅜	34⅛	29¾	44¼	28¾		427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	33,200	40¼	40¼	39	39⅜	— ⅞
41⅜	30⅛	34⅞	30	77	31½	(sh)	1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	1,500	60	61	60	61	— 1⅛
5¼	1	6½	3⅛	14¼	2½	(sh)	1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	35,400	8	8	7	7½	— ½
58	48	58	45	74¾	50		$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	47,700	62⅝	62¾	61	62½	— ⅜
19½	12	18⅞	12	26⅝	12⅛		8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	12,700	18½	18½	17	17⅜	— ⅞
39¼	27	29⅛	19	41½	19⅝	(sh)	2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	3,000	36	36	34⅝	34⅝	— 1⅝
103	87¼	90⅛	85	100⅛	86		$20,705,200	$100	Tide Water Oil Co. 5% pfd.	65½cQ	Dec. 15, 28	900	92½	93½	92½	93½	+ ¼
27	20⅞	19⅛	15¾	25	14¾	(sh)	4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	31,100	20⅝	21	19½	20	— ⅝
5½	3	10⅜	3¾	14¾	7¼	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	91,100	12⅞	13	11¾	12¼	— ½
58⅜	37¼	56½	39⅝	58	42¾		$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	19,000	49⅜	49⅝	47⅛	47½	— 1⅜
120⅜	84¼	127½	94	128⅛	110		31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	1,000	132	132	130	130	— 3
30⅛	23½	34½	24½	44⅞	26	(sh)	356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	19,700	31	31	28½	31¼	— ⅛
29¾	25⅛	27½	20	38	20⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	6,900	35	35	33½	35	+ ⅛
									Wilcox Oil & Gas	.....	.....	3,900	23	23	20½	21¼	— 2⅜

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞		£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	400	14½	14⅞	14¼	14½	
....	....	3¾	¾	5	1¼	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	200	1½	1½	1½	1½	
76	65	69	50	56½	44½		1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	50	38¼	38¼	38¼	38¼	
59½	42	60	45	76	53		10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	100	69	69	69	69	
82½	65	126	76½	161	117		3,000,000	25½	Chesebrough Mfg.	$1Q	Dec. 28, 28	No sales.					
25⅞	17½	22⅝	16¼	23	16		36,057,840	10	Continental Oil	.....	Dec. 15, 27	11,507	21⅜	21⅜	19⅞	20	
137	102	137	89	114	67		1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	No sales.					
63¾	43	68½	47	88	64⅛		5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	150	62	62¾	60¾	62¾	
32½	9⅞	13½	3½	13	4¼		16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	6½	6½	6½	6½	
68½	52	68½	54	114¾	59¼		73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	7,400	114⅝	117	113	114	
144½	125½	182	123¾	290½	176½		20,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	1,100	302¼	307	300	300	
....	....	64¾	37¾	104	56¾	(sh)	6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	1,900	108	108¼	105	106¾	
72½	58	94½	61	91⅞	74⅜		$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	100	96	96	96	96	
35½	28¾	39	28¼	55	35	(sh)	7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	7,500	51	51	47¼	48	
20¾	12½	24	13½	32⅜	19⅜		$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	2,400	24	24⅜	22⅝	22⅝	
51½	27¼	44½	31¼	75	38½		5,000,000	100	New York Transit	.....	July 15, 26	50	82	82	82	82	
80½	64	100	70	69	56½		2,000,000	50	Northern Pipe Line	$3S.A.	Jan. 2, 29	50	55	55	55	55	
67¾	55¾	67⅞	52	84	58½		60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	5,700	69¾	70½	69¾	70⅛	
24⅜	15	39	12	84	28		10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	600	20⅛	27½	20½	26½	
220	84½	201½	175½	220	167		4,000,000	100	Solar Refining	$5S.A.	Dec. 20, 28	No sales.					
74½	61½	27¼	15½	19	15		1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	No sales.					
50	34½	41½	35	71⅞	36¾		2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	1,500	54	53⅞	49⅝	50⅜	
56	47½	83	55½	102	70		3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	100	65	65	65	65	
70½	60½	81½	64⅝	95⅞	70⅞		228,415,463	25	Standard Oil of Indiana	61½Q	Dec. 15, 28	16,150	56¼	56½	54	54⅜	
36½	16½	20⅞	14⅝	37⅜	15		8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	600	18⅝	18⅝	18½	18½	
134⅜	108	130	111½	179¾	122¼		17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	7,200	37	37	35⅛	36⅝	
51⅛	42	49½	40	54⅞	39⅞		4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	100	48	48	48	48	
372	288	87½	72	134	71		14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	260	120	121½	116	120	
21	15	21	14½	23½	16		861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109⅜	90¼	....	....	111	72		125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	2,600	120	120	115½	117	

*Also extras.

been for several months considering that sellers have experienced an improved volume of business during May. Fuel oils continued strong but slightly more readily available than in many weeks with business going at prevailing quotations of 80 to 85 cents in large quantities to around 81 for lesser amounts.

Gasolines have not been quite so favorable locally with prices ranging around 9 cents. Material for export and coastwise movement is bringing slightly better prices.

FRED M. AIKEN DEAD

Fred M. Aiken, a veteran oil operator in the Eastern and Mid-Continent Fields, died in Los Angeles, Calif., on May 31. Mr. Aiken was 74 years old. He operated in the Bradford Field in the early days with the late W. L. Curtis and the town of Aiken, once an important field center in McKean County, Pennsylvania, was named in his honor. Later he operated in West Virginia and Ohio, after which he came to Tulsa, where he lived many years and operated both in production and as a natural gasoline manufacturer. At the time of his death Mr. Aiken was interested in the Cushing Gasoline Co. and was president of the Admiralty Lead & Zinc Co. of Miami, Okla. He is survived by Mrs. Aiken and three children.

KANSAS FIELDS

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immediately. It is estimated at 1,500 bbls. a day. The well is higher on structure than wells to the east, and the new strike points to more production being found in a westerly direction from the pool, which has not yet been defined. Bu-Vi-Bar, Marland, and Gypsy Oil Co. and Davis and others are following up the new well with more locations to the south and west. Bu-Vi-Bar and others have moved in a rig a quarter mile west in the NW cor. SE, Section 1-26-1w, Sedgwick County, and Davis and others have staked a location in the SW cor. NE, Section 1-26-1w, Sedgwick County.

Sedgwick County Production

The production by companies and leases in the Sedgwick County area for June 1 is shown by the following:

Company, lease—	S-T-R	Wells	Bbls.
Aladdin:			
Bennington	6-26-1	2	1,730
Allison et al:			
Kelly	6-26-1	1	70
Barnsdall:			
Samuel	24-25-1	1	50
Bu-Vi-Bar:			
Branch	6-26-1	2	1,178
Bright "A"	6-26-1	2	224
Bright "B"	6-26-1	2	883
Byers	7-26-1	1	211
Emrich	6-26-1	2	974
T. Goodrich	6-26-1	2	649
Lantz	12-26-1w	1	671
Corr	1-26-1w	2	1,473
Lyons	7-26-1e	3	2,720
Roll	7-26-1e	1	571
Shawver	7-26-1e	4	3,844
Wright	12-26-1w	3	4,075
Woodward	7-26-1e	1	229
Connell:			
Cross	27-25-1w	1	12
Davis-Skelly:			
Wilson	1-26-1w	7	2,715
Derby:			
Bowling	6-26-1e	1	128
Gorman	6-26-1e	2	1,620
Dickey et al:			
Robbins	21-28-1e	1	540
Gypsy:			
Hamant	14-26-2e	1	1,735
Marland:			
Goodrich	16-25-1e	2	1,420
Mary Jane:			
Fitch	6-26-1e	2	594
Montour:			
Lavender	6-26-1e	2	1,685
Patton & Wentz:			
Swenson	6-26-1	1	150
Phillips:			
Difford	1-26-1w	3	207
Piefer	6-26-1e	1	116
Prairie:			
Cross	27-25-1w	1	65
Swyser	36-25-1w	3	350
Pyle & Sutter:			
Caldwell	6-26-1e	3	976
Reynolds & Hays:			
Roll	7-26-1	1	155
Shell:			
Lygrisse	15-26-2	1	1,947
Stearns & Streeter:			
Roll	7-26-1	1	600
Tidal:			
Scherger	6-26-1	2	125
Vickers:			
Nessen	6-26-1	3	755
White Eagle:			
Baylor	6-26-1	1	35
Total		69	35,482

Butler County

Phillips Petroleum Co. made location for No. 1 Landon, C SE NW, Section 36-27-5. Lilly & Schreck's No. 1 Barrett, NE cor. NW NW, Section 17-25-7, is dry and abandoned at 765 feet. Empire Oil & Refining Co.'s No. 79 Koogler, NE cor. SW NW, Section 20-26-5, has been completed for 100 bbls. in sand 2,509-90 feet. No. 80 Koogler, NE cor. SE NW, Section 20-26-5, was completed for 115 bbls. in sand 2,475-2,554 feet. Phillips Petroleum Co. & Shell Petroleum Corp.'s No. 1 McClellan, SE cor. SW, Section 23-26-6, is dry and abandoned at 3,305 feet. Empire Oil & Refining Co.'s No. 6-A Brandenberger, NW cor. NE NE, Section 22-27-5, made a 50-bbl. well in sand 2,721-58 feet. No. 7 Cranston, SE cor. SW SE, Section 22-27-5, is making 125 bbls. from sand 2,730-69 feet.

Chase County

Selby Oil & Gas Co. is rigging up for No. 7 Shambaugh, SE cor. NE, Section 35-22-9.

Clark County

Watchorn Oil & Gas Co.'s No. 2 Morrison, C NW NE, Section 20-32-21w, is rigging up.

Cowley County

Foster & Deal made location for No. 1 Wright, SE cor. NW, Section 27-33-3. Foster Petroleum Co.'s No. 1 Mitchler, SE cor. NE SE, Section 9-32-4, has been abandoned at 3,495 feet. The Prairie Oil & Gas Co.'s No. 1 Mitschler, SE cor. SW SE SE, Section 9-32-4, made 1,018 bbls. in sand 3,291-96 feet. Kentucky Nitrogen & Oxygen Co.'s No. 6 Dobson, SE cor. NE NE, Section 24-33-6, has been completed for 170,000 feet of helium gas.

Greenwood County

Empire Oil & Refining Co.'s No. 1-B Pixlee, SW cor. NW SE, Section 9-22-10, is a rig on the ground. The Prairie Oil & Gas Co. made location for No. 1 Parrish, NW cor. NE, Section 16-24-12. Sheedy and others' No. 1 Nixon, NW cor. NE NE, Section 5-24-13, is drilling at 1,300 feet. Shull Drilling Co. made location for No. 1 Alliss, NE cor. SE NW, Section 17-24-13.

Mid-Continent Petroleum Corp.'s No. 15 Wayham, NE cor. SE, Section 14-24-12, made 5 bbls. in sand 1,702-30 feet. Aladdin Petroleum Co.'s No. 1 Kirk, NE cor. SE SE, Section 10-25-8, has been abandoned at 2,415 feet.

Harvey County

Fisher & Lauck and others' No. 1 Reiger, NW cor. NE, Section 17-23-2, is dry and abandoned at 3,343 feet.

Marion County

Skelly Oil Co. has the rig on the ground for No. 1 Mehl, NW cor. NE, Section 11-20-4. Empire Oil & Refining Co.'s No. 3 Suderman, SW cor. SE NE, Section 12-19-2, has been abandoned at 2,928 feet.

McPherson County

T. B. Slick & Pryor & Lockhart's rig is up for No. 1 Gratton, NE cor. NW NW, Section 34-20-3w.

Trego County

R. E. Day and others moved the rig in for No. 1 Eaton, NE cor. NW SW, Section 2-11-21w.

Rooks County

Derby Oil Co.'s No. 1 Kruse, NW cor. NE NE, Section 3-10-16w, has been deepened to 3,425 feet and abandoned.

Russell County

Mid-West Exploration Co.'s No. 6 Brungardt, NW cor., Section 31-12-15w, made 250 bbls. in sand 3,050-95 feet.

Rush County

Peters Petroleum Co. made location for No. 1 Schwartzkopf, NW cor. NE SW, Section 27-17-17w. Danciger and others made location for No. 3 Scheverman, SW cor. SE NW, Section 27-17-17w. Location was made for No. 2 Scheverman, SE cor. SW NW, Section 27-17-17w. Phillips Petroleum Co.'s No. 1 Legleeter, NE cor. NW SE, Section 10-16-18w, is dry and abandoned at 3,760 feet.

Sedgwick County

Brandeburg & Hinkle's No. 1 Whiting, NW cor. SW, Section 31-25-1, is drilling deeper at 2,760 feet. Bu-Vi-Bar Petroleum Corp. and others built the rig for No. 5 Bright "A," NE cor. SW SW SW, Section 6-26-1, Valley Center Pool. Gypsy Oil Co. has the rig up for No. 3 Hamant, SW cor. NW SW, Section 14-26-2, Greenwich area. Roy Sharp and others' No. 1 Townsite, NE cor. SW SE SW, Section 15-26-2, is a rig on the ground. Aladdin Petroleum Co. has the rig up for No. 1 Schweiter, SE cor., Section 27-27-1. Aladdin Petroleum Co. & Sullivan's No. 1 Worford, NW cor. NE NW, Section 29-28-1, is a rig going up.

Kayser and others' No. 1 Stroot, SW cor. NW, Section 8-26-2w, is dry and abandoned at 4,093 feet. Bu-Vi-Bar Petroleum Corp. and others' No. 1 Carr, NE cor. SE, Section 1-26-1w, was completed for 971 bbls. in sand 3,362-66 feet. Derby Oil Co.'s No. 3 Gorman, NW cor. SW, Section 6-26-1, made 1,000 bbls. in sand 3,361-64½ feet. Phillips Petroleum Co.'s No. 1 Van View Townsite, NE cor., Section 18-26-1, has been abandoned at 3,565 feet. Tatlock & Shell Petroleum Corp.'s No. 1 Cook, SW cor., Section 25-28-2, is dry and abandoned at 3,410 feet. Lario Oil Co.'s No. 1 Tjaden, C NE SE, Section 22-29-2w, has been abandoned at 3,993 feet.

Sumner County

Lario Oil & Gas Co. made location for No. 1 Wolfe, NW cor. NE, Section 16-34-1. Gypsy Oil Co. has the rig up for No. 1 Davidson, SE cor. NW SW, Section 16-35-3w.

OKLAHOMA FIELDS

(Continued from Page 59)

city. It is No. 2 Reed, a south offset to the No. 1 Reed, just outside the city limits which was completed last week for 1,050 bbls. The city council has recently passed an ordinance permitting one well per block. Empire Oil & Refining Co. and Amerada Petroleum Corp. have also recently completed a well on the north edge of the town on their Bullock lease in Section 8-9-5, Seminole County.

Sinclair Oil & Gas Co.'s No. 1 Jefferson, SE NE SE, Section 23-5-7, Seminole County, in the Allen Pool, made 850 bbls. from the Wilcox sand at 4,183-87 feet, swabbing and flowing. The well had trouble with gas blowouts before it could be shut in.

Mid-Continent Petroleum Corp.'s No. 5 Smith, NW cor. SW NE, Section 5-7-7, Seminole County, east of the Little River Pool, had Wilcox sand at 4,222-32 feet. On May 31 gauge it produced 4,690 bbls. in 24 hours. The well is the largest single producing well in the Seminole area. The gauge on the entire lease for the same day was 11,360 bbls. from all five wells.

Daily Pipe Line Runs

The daily average pipe line runs from the St. Louis Pool for the past week are as follows:

Company—	Bbls.
Consolidated	3,531
Cosden	817
Gulf	6,365
Independent	5,203
Magnolia	28,595
Oklahoma	1,897
Prairie	20,032
Shell	2,100
Sinclair	23,943
Texas	2,600
Tidal	3,000
Total	98,083

The daily average pipe line runs from the Seminole area for the past week are as follows:

Company—	Bbls.
Barnsdall	5,241
Champlin	1,086
Continental	781
Consolidated	370
Cosden	9,927
Empire	10,183
Gulf	38,756
Independent	268
Magnolia	18,970
Oklahoma	41,125
Prairie	51,512
Producers & Refiners	2,270
Pure	2,861
Shaffer	3,878
Shell	9,128
Sinclair	39,092
Texas	16,712
Tidal	17,112
White Oak	4,697
Total	276,970
Tank cars	6,162
Grand total	283,132

The Independent Oil & Gas Co. has an important drilling well in the NW cor., Section 16-7-4, Pottawatomie County. The top of the Simpson was reached at 4,012 feet, where it had the first showing of oil. After drilling to a total depth of 4,067 feet it produced on June 2, 2,500 bbls. of oil. The owners deepened it 2 feet, making the total depth 4,069 feet, and the production jumped up over 1,000 bbls. When the gauge was taken on June 3, it was found to be 3,252 bbls.

Caddo County

N. Olson's No. 1 Rowe, SE cor. NE, Section 36-3-10w, is drilling at 1,300 feet.

Carter County

Gilmer Oil Co.'s No. 1 Hernstadt, NW cor. NE NE, Section 26-1s-3w, has been completed for 5 bbls. in sands 2,406-2,700 feet. Magnolia Petroleum Co.'s No. 1 Hightower, SW cor. NE, Section 30-1s-3w, made 39 bbls. from sands 2,663-2,796 feet. Gilmer Oil Co.'s No. 2 Hernstadt, NE cor. NW NE, Section 26-1s-3w, is a rig.

Comanche County

Harry Muse and others' No. 1 Hawk, NW cor. SW SW, Section 4-1-9w, is rigging up rotary tools.

Cotton County

Silurian Oil Co. & Perkins & Cullum made location for No. 1-P Chambers, NW cor. SW NE NW, Section 2-2s-10w. Clifford Moore's No. 3 Moore, SE cor. NE NE SW, Section 2-2s-10w, is rigging up. Egger & Wallace's No. 1 Williams, NE cor SW SW, Section 25-1s-10w, was completed for 7 bbls. in sand 2,243-50 feet.

Creek County

Phillips Petroleum Co.'s No. 1 Koch, NE cor., Section 20-19-9, is a machine rigging up. Pure Oil Co. made location for No. 22 S. Crow, NW cor. NE NE, Section 5-18-7. The Texas Company's No. 3 M. Gooden, SE cor. SW SE, Section 16-17-7, is preparing to deepen. B. E. Reffe and others No. 1 Jones' SE cor. NE, Section 7-17-8, is drilling at 850 feet. Pure Oil Co. made location for No. 7 Kernel, C SE NE, Section 30-14-8. Fuhrman Petroleum Co. made location for No. 1 Cappeau, CSL NW, Section 6-14-10. Atlantic Oil Producing Co.'s No. 1 H. Bear, NW cor. SE, Section 16-14-10, is rigging up to deepen from 3,369 feet. No. 2 Scott, SW cor. NE NW, Section 23-14-10, is rigging up to deepen from 2,664 feet.

E. H. Short's No. 1 Grayson, SE cor., Section 17-19-9, made 40 bbls. from sand 2,267-2,302 feet. Silurian Oil Co.'s No. 26 W. Starr, SW cor. SE SE, Section 8-18-7, has been completed for 190 bbls. in sand 2,491-2,545 feet. Apex Oil & Gas Co.'s No. 2 Fife, NE cor. SW SW, Section 28-18-11, made 30 bbls. in sand 1,613-25 feet. Magnolia Petroleum Co.'s No. 11 Deere, SW cor., Section 7-17-7, has been abandoned at 3,170 feet. The Prairie Oil & Gas Co.'s No. 6 Litchfield, NW cor. NE NE, Section 21-17-7, was deepened to Tucker sand 2,896-2,901 feet and made 475 bbls. Franchot & Mid-Continent Petroleum Corp.'s No. 3 Garrett, NE cor. NW SW, Section 16-16-10, made a 20-bbl. well in sand 2,877-2,886 feet. Kawfield Oil & Gas Co.'s No. 7 Snelling, CEL SW NE, Section 9-15-10, is dry and abandoned at 2,650 feet. E. W. Dodge's No. 1-A Buffalo, NW cor. SE, Section 32-15-12, is a dry hole at 2,772 feet.

Custer County

Head & Amphlett's No. 1 Logan, SW cor. SE, Section 10-12-17w, is drilling at 50 feet.

Grady County

Meridian Gas Co.'s No. 2 Short, SE cor. SW SW, Section 25-4-8w, is drilling at 2,070 feet.

Jefferson County

Cox & Robinson's No. 1 Seay, SE cor. NE SW, Section 34-6s-5w, is recementing pipe at 600 feet. Sigler and others' No. 2 Peniston, NE cor. SE NW SW, Section 16-7s-5w, has been shut in for 1,000,000 feet of gas in sand 755-74 feet.

Kay County

Parrish and others moved a machine to the location for No. 1 Quade, CSL SE SW, Section 4-27-1.

Kiowa County

Connor & Son's No. 1 Geis, SE cor. NW NE, Section 26-7-16w, is rigging up to deepen from 1,712 feet. J. M. Ruhl's No. 1 Ditmar, NW cor. NE SE, Section 19-6-16w, is drilling at 250 feet. Russell & Sloan's No. 1 Miller, NW cor. NE, Section 24-7-17w, has been abandoned at 760 feet. Burke & Son's No. 1 Copple, NW cor. SE, Section 33-6-17w, is dry and abandoned at 280 feet. Rymer and others' No. 1 Weidel, C NE NE, Section 5-6-15w, has been abandoned at 402 feet.

Latimer County

Le Flore County Gas & Electric Co.'s No. 1 Yancy, CWL SE SW, Section 10-6-21, has been completed for 3,178,000 feet of gas in sand 1,481-1,840 feet.

Lincoln County

Shaffer Oil & Refining Co. & Peerless Oil Co.'s No. 2 Connell, CEL SW, Section 31-17-5, is a rig on the ground.

Logan County

Wentz Oil Corp. has the celler dug for No. 2 Williams, NW cor. NE, Section 31-19-4w, Roxana Pool. Material is being moved in for No. 3 Williams, NE cor. NW NE, Section 31-19-4w. Olean Petroleum Co.'s No. 1 Shepard, SE cor. SW, Section 7-19-4, is dry and abandoned at 6,096 feet. J. E. Crosbie's No. 4 Shaffer, SW cor. NW NW, Section 20-19-4w, made 3,416 bbls. in Wilcox sand 6,130-62 feet.

Muskogee County

Traders Petroleum Co.'s No. 1-A Howard, CWL NE NW, Section 29-15-16, is a machine. C. D. Bradley has a machine on the location for No. 1 Anderson, NW cor. SW, Section 26-15-19. S. O. Scho-

field, No. 1 Flying, NE cor. SW NE SE, Section 32-15-19, is spudding. W. J. Metzger and others moved a machine to the location for No. 9 Francis, CWL SE SW, Section 1-14-18. M. E. Johnson has a machine on the location for No. 2 Hardishell, CEL SE SW, Section 19-14-19.

Noble County

Gypsy Oil Co. has the slush pit dug for No. 1 Butler, SW cor. NE NE, Section 24-22-1. Magnolia Petroleum Co. made location for No. 1 King, SE cor. SW, Section 26-20-1w.

Okfuskee County

C. L. McMahon & J. Carey moved the rig in for No. 1 Foster, NE cor. NW, Section 32-12-10. Champlin Oil & Refining Co. has the rig up for No. 13 Holmes, NW cor. NE, Section 22-11-11. W. L. Umburn made location for No. 8 Tiger, SE cor. NW, Section 2-10-11. Jarvis & Holm and others' No. 1 Buckley, NE cor. NW NW, Section 21-10-11, is a rig on the ground. Josey Oil Co.'s No. 1 Stubblefield, SW cor. NE NW, Section 33-12-11, has been completed for 200 bbls. in sand 3,590-3,635 feet.

Okmulgee County

Kirkland & Son's No. 2 Prince, NW cor. NE NW, Section 20-15-13, is drilling at 700 feet. Troutt Drilling Co.'s No. 8 Doyle, C SW NW, Section 28-13-14, is a machine, preparing to deepen. E. J. Lambert and others moved the rig in for No. 3 Freeman, NE cor. NW NW, Section 7-13-15. Wier & Cramer's No. 3 Hawkins, SW cor. NW SE, Section 4-11-12, is drilling at 220 feet. The Prairie Oil & Gas Co. & T. B. Slick's No. 5 Hawkins, NE cor. NW SE, Section 6-11-12, is deepening at 2,717 feet.

Kirkland & Son's No. 1 Barnett, SE cor. NE SE, Section 18-15-13, is dry and abandoned at 2,624 feet. Prince & Anderson's No. 1 Butler, SE cor. SW SW, Section 21-12-14, made 5 bbls. in sand 2,203-20 feet.

Osage County

Duffield & Howard Petroleum Co.'s rig is up for No. 1, SW cor. NW, Section 33-26-7. J. H. Craig is building the rig for No. 1, SE cor. SW, Section 10-26-8. Peters Petroleum Corp. has the rig up for No. 10, SW cor. NE NW, Section 26-25-9. F. R. Billingslea is erecting the rig for No. 3, NW cor. NE NW, Section 6-23-9. Indian Territory Illuminating Oil Co.'s No. 3, NE cor. NW SW, Section 28-23-9, is drilling at 80 feet. Zika & Neeley made location for No. 1, NW cor. SW, Section 12-21-11.

A. G. Oliphant and others' No. 1, SE cor. SW NE NW, Section 31-27-9, is dry and abandoned at 2,372 feet. J. W. Kelso's No. 1, SW cor. SE SW NE, Section 17-27-10, is dry and abandoned at 1,331 feet. Marland Oil Co. & Gypsy Oil Co.'s No. 1, SE cor. NE, Section 21-24-7, made 112 bbls. from sand 2,506-89 feet. Amerada Petroleum Corp.'s No. 2, SW cor. NE SW, Section 5-24-8, has been abandoned at 2,896 feet in Wilcox sand. C. B. Peters' No. 2, NW cor. NE SE, Section 18-24-8, is a dry hole at 1,112 feet. Pueblo Petroleum Co.'s No. 2, NE cor. SE SW, Section 14-21-8, made a 10-bbl. well in sand 2,269-2,310 feet. Devonian Oil Co.'s No. 3, SE cor. SW SE, Section 30-21-10, was completed for 40 bbls. in Bartlesville sand 2,043-54 feet.

Pawnee County

Charles Burton's No. 4 Byers, SW cor. SE NW, Section 36-21-8, is drilling at 750 feet. Short & Mann's No. 1 Blackmer, NE cor., Section 22-20-9, is rigging up. Mooney & Thompson's No. 1 Price, NE cor. SW NE, Section 17-20-10, has drilled to 2,270 feet and is now underreaming.

Payne County

Pure Oil Co. made location for No. 2 Moebius, NE cor. NW, Section 4-19-5. Shaffer Oil & Refining Co. has the rig on the ground for No. 2 Little Filef, SW cor. NW NE, Section 4-18-5. Mulberry Oil Co.'s No. 1 Nims, NW cor. NE, Section 5-17-5, made 75 bbls. from sand 3,620-42 feet.

Stephens County

Four In One Oil Co.'s No. 1 Funk, SW cor. SE SW, Section 19-1-8w, is rigging up to deepen from 2,080 feet. Hupp & Duff's No. 5 Burke, SW cor. NE, Section 34-1s-8w, is drilling at 200 feet. Lone Eagle Oil Co.'s No. 10 Simpson, NE cor. NW NW SE, Section 34-1s-8w, is rigging up. American Pipe Line Co.'s No. 6 Dexter, SE cor. NW, Section 34-1s-8w, has drilled to 400 feet and shut down. Ven Mex Oil Co. & Mid-Continent Petroleum Corp.'s No. 1-C Gilworth, C NW NW, Section 2-2s-8w, is drilling at 150 feet. Magnolia Petroleum Co.'s No. 5 Peck, NE cor. SE SE NE, Section 13-2s-8w, is rigging up.

Fisher & Rankin's No. 1 Williams, SW cor. NE SW, Section 33-1-8w, is dry and abandoned at 2,200 feet. Paul Trahan's No. 1 Gunn, SW cor. SE SE, Section 34-1s-9w, is dry and abandoned at 2,503 feet. Fort Ring Oil Co. & L. Syke's No. 3 Taliaferro, NW cor. SE SE, Section 28-1s-8w, is pumping 50 bbls. from sand 2,735-40 feet after being deepened from 2,660 feet. Pace & Texhoma Oil Co.'s No. 2 Houston, NW cor. SE SW, Section 2-2s-8w, has been abandoned at 1,793 feet. Pace and others' No. 2 Bristowe, SW cor. NW, Section 18-2s-7w, made 50 bbls. from sand 1,431-37 feet.

Tillman County

Landfair and others' No. 1 Smith, SE cor. SW SE, Section 6-2s-16w, is a dry hole at 2,535 feet.

Waggoner County

Cherokee Public Service Co.'s No. 1 Brown, NW cor. SW, Section 36-16-17, is swabbing 20 bbls. from sand 869-886 feet. C. F. Finefield and others' No. 1 Crow, SW cor. SE NE SW, Section 22-16-19, is spudding. No. 6 Vann, C N half SW, Section 22-16-19, was completed for 75 bbls. in sand 775-96 feet.

Hughes County

W. B. Pine made location for No. 1 Scott, NE cor., Section 6-8-9.

Oklahoma County

Cromwell Oil & Gas Co.'s No. 1 Thompson, SW cor. NE NE, Section 15-12-3w, near Oklahoma City has been abandoned at 7,182 feet which was the deepest hole in the state, when it was abandoned.

Pontotoc County

Benedum & Trees' rig is up for No. 1 Mathews, NE cor. SE, Section 31-5-5.

Pottawatomie County

Empire Oil & Refining Co. made location for No. 2 Smith, SE cor. NE, Section 8-8-5, Maud Pool. W. B. Pine has the cellar dug for No. 2 Smith, SE cor. SW NE, Section 8-8-5. Magnolia Petroleum Co. made location for No. 1 Richardson, NW cor. SW SW, Section 15-7-4, Pearson area. Independent Oil & Gas Co. & Westland Oil Co. made location for No. 2 Rhodd, SW cor. NW NW, Section 16-7-4. Independent Oil & Gas Co. staked the location for No. 1 James, NW cor. SE SW, Section 17-7-4. Pierce Oil Corp.'s No. 1 Sanders, NW cor. SW, Section 20-7-4, is preparing to deepen from 4,068 feet in Hunton lime to the Simpson sand. Texola Oil Co. has the cellar dug for No. 1 Asher Townsite, center of Block 48, NE cor. NW SW SW, Section 18-6-4. Stogner and others' rig is going up for No. 1 Asher Townsite, center of Block 11, NE cor. SE SW, Section 18-6-4. Diegnan and others' rig is up for No. 1 Asher townsite, C S half Block 39, CWL SE SW, Section 18-6-4. Stauffer and others' No. 1 Asher Townsite, center of Block 2, Highland Addition, NW cor. SE, Section 18-6-4, is a rig under construction. Winkler Oil Corp.'s No. 1 Asher Townsite, center of Block 6, Highland Addition, NW cor. SW SW SE, Section 18-6-4, is rigging up. Texola Oil Co. has the cellar dug for No. 1 Asher Townsite, NW cor, Section 19-6-4. The Prairie Oil & Gas Co. made location for No. 2 Rice, NE cor. SE NE, Section 17-7-4. Location was also made for No. 2 Cummings, SE cor. NE NE, Section 17-7-4. The rig is under construction for No. 3 Laster, NW cor. SE NE, Section 19-6-4, Asher Pool.

Sinclair Oil & Gas Co.'s No. 2 Calvin, NE cor. SE SW, Section 7-8-5, Maud Pool made a 10-bbl. well in sand at 4,133 feet. Empire Oil & Refining Co.'s No. 1 Smith, SW cor. SE NE, Section 8-8-5, has been completed for 1,190 bbls. in Hunton lime 4,087-4,100 feet. Skelly Oil Co. & Lenox Oil Co.'s No. 1 Green, NW cor. SW NW, Section 20-8-5, flowed 335 bbls. from Misener sand 4,153-77 feet. Sinclair Oil & Gas Co.'s No. 7 Nesbit, SW cor. SE NW, Section 18-7-5, pumped 35 bbls. from Simpson sand 4,010-4,125 feet after plugging back from 4,185 feet in Wilcox sand. No. 8 Nesbit, NW cor. SE NW, Section 18-7-5, swabbed 260 bbls. from Simpson sand at 4,060 feet after plugging back from Wilcox sand. Magnolia Petroleum Co.'s No. 2 I. Rowe, NE cor. NW SW, Section 18-7-5, is pumping 10 bbls. from Simpson sand at 4,190 feet where it was plugged back from Wilcox sand.

Atlantic Oil Producing Co. and Independent Oil & Gas Co.'s No. 1 Burke, SW cor. NE, Section 16-7-4, Pearson area, flowed 890 bbls. from Hunton lime at 3,648-3,850 feet. Phillips Petroleum Co.'s No. 1 Lydick, SE cor NE, Section 24-7-4, pumped 35 bbls. from the Simpson sand at 4,175-4,246 feet after being deepened. Magnolia Petroleum Co.'s No. 5 Cherry, NW cor. SW NE, Section 26-7-4, is pumping 10 bbls. from 4,355 feet in Wilcox sand. Simms Oil Co.'s No. 1 Laster, SE cor. NE NE, Section 19-6-4, Asher Pool, flowed 3,785 bbls. from the Viola lime at 3,640-99 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Laster, NE cor. SE NE, Section 19-6-4, was completed for 2,105 bbls. in the Viola lime at 3,597-3,679 feet.

Seminole County

Empire Oil & Refining Co. has the cellar dug for No. 13 Cluck, SE cor. NE, Section 11-8-5, Carr City Pool. W. B. Pine's No. 3 Harjo, NW cor. SW SE Section 6-8-6, Mission Pool, is a cellar. The Texas Company has the cellar dug for No. 7 Janey, SE cor. NE SW, Section 11-7-6, Little River Pool. Gypsy Oil Co. made location for No. 16 Cotcha, SE cor. NW SW Section 23-7-6. Mid-Continent Petroleum Corp. made location for No. 10 Smith, NE cor. NW SE, Section 5-7-7, East Little River Pool. Empire Oil & Refining Co. made location for No. 1 Fish, NE cor. SE Section 19-7-8. Carter Oil Co. made location for No. 1 Fish, SW cor. NW Section 20-7-8. Blackwell Oil & Gas Co. made location for No. 1 Hall, SE cor. Section 6-6-8.

Independent Oil & Gas Co.'s No. 1 Alexander, SE cor. SW SW Section 31-10-6, Earlsboro Pool, is dry and abandoned at 4,390 feet. Superior Oil Corp.'s No. 3 Ingram, NE cor. NW NW Section 1-9-5, made 510 bbls. from the Wilcox sand at 4,314-28 feet. Gypsy Oil Co.'s No. 4 Mosar, SW cor. SE NE Section 1-8-5, Mission Pool, was completed for 130 bbls. in the Wilcox sand at 4,216-24 feet. Sinclair Oil & Gas Co.'s No. 3 L. Harjo, NE cor. SW SE Section 11-8-5, Carr City Pool, made 570 bbls. from the Wilcox sand at 4,270-81 feet.

Empire Oil & Refining Co.'s No. 7 Cluck, SE cor. NW SE, Section 11-8-5, made 765 bbls. from the Wilcox sand at 4,176-86 feet. Barnsdall Oil Co.'s No. 6 Coker, SW cor. NE SW Section 11-8-5, was completed for 500 bbls. in the Wilcox sand at 4,150-62 feet. No. 8 Coker, NE cor. SW SW Section 11-8-5, pumped 115 bbls. from the Wilcox sand at 4,198 feet. Tidal Oil Co.'s No. 4 Nellie, SE cor. Section 12-8-5, made 700 bbls. from the Wilcox sand at 4,203-18 feet. No. 5 Nellie, NW cor. SE SE Section 12-8-5, was completed for 655 bbls. in the Wilcox sand at 4,195-4,205 feet.

The Prairie Oil & Gas Co.'s No. 8 Billington, SW cor. SE NW Section 11-8-5, Carr City Pool, made 115 bbls. from a sand at 4,190-98 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Nelly, NE cor. SW SE Section 12-8-5, was completed for 565 bbls. in the Simpson sand at 4,255-88 feet. The Gypsy Oil Co.'s No. 7 N. Barkus, NE cor. SE SW Section 6-8-6, Mission Pool, made 947 bbls. from the Wilcox sand at 4,160-67 feet. No. 8 Mission, SW cor. SE SE Section 6-8-6, was completed for 800 bbls. in the Wilcox sand at 4,250-63 feet.

Gypsy Oil Co.'s No. 9 Mission, NE cor. SE Section 6-8-6, has been completed for 300 bbls. in the Wilcox sand at 4,286-4,305 feet. Sinclair Oil & Gas Co.'s No. 4 Hardy, SW cor. NE SW Section 7-8-6, Maud Pool, made 630 bbls. from the Wilcox sand at 4,282-4,302 feet. Shell Petroleum Corp. and Papoose Oil Co.'s No. 5 Maines, SE cor. NW SW Section 7-8-6, produced 442 bbls. from the Wilcox sand at 4,250-71 feet. Independent Oil & Gas Co. and Kistler's No. 3 Payne, SW cor. NE NW Section 7-8-6, Mission Pool, swabbed 735 bbls. from the Wilcox sand at 4,380-84 feet. No. 4 Payne, SE cor. NE NW Section 7-8-6, made 300 bbls. from the Wilcox sand at 4,473-75 feet.

Gypsy Oil Co.'s No. 4 Harjoche, SW cor. NE SE Section 7-8-6, has been completed for 150 bbls. in the Wilcox sand at 4,405-13 feet. No. 5 Hardy, NW cor. SE NW Section 7-8-6, made 360 bbls. in the Wilcox sand at 4,310-16 feet. No. 5 Doser, NW cor. NE NE Section 7-8-6, flowed 860 bbls. from the Wilcox sand at 4,289-97 feet. Carter Oil Co.'s No. 4 Fuswa, NW cor. Section 18-8-6 pumped 20 bbls. after drilling to 4,284 feet in the Wilcox sand and plugging back to 4,240 feet. Indian Territory Illuminating Oil Co.'s No. 1 Peterson, SE cor. SW NW Section 24-7-5, is dry and abandoned at 4,479 feet in the Wilcox sand.

The Gypsy Oil Co.'s No. 8 Cotcha, SW cor. Section 23-7-6, Little River Pool, has been completed for 2,467 bbls. in the Gilcrease sand at 3,135-75 feet. Carter Oil Co.'s No. 2 B. Larney, NW cor. SW NW Section 26-7-6, flowed 500 bbls. from the Gilcrease sand at 3,268-80 feet. Independent Oil & Gas Co.'s No. 1 Carpenter, NE cor. Section 27-7-6, was deepened from 3,118 feet to 3,121 feet and made 2,103 bbls. in the Gilcrease sand. Sinclair Oil & Gas Co.'s No. 1 Joanna, NE cor. NW Section 24-5-7, west of Allen Pool, is dry and abandoned at 4,501 feet in the Wilcox sand.

PRODUCTION OF SEMINOLE AREA

Production of pools in the Seminole area by companies and leases for May 31 follows:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Nitey	2-7-6	3	440
Amerada-Wilcox:			
Fore	35-8-6	2	780
Barnsdall:			
Cotcha	23-7-6	2	565
Hotulke	22-7-6	2	175
Walker	4-7-6	1	31
Blackwell:			
Baker	11-7-6	4	1,270
Nitey	35-8-6	5	173
Talley	14-7-6	4	740
Bryan & Emery:			
Walker	4-7-6	1	12
Carter:			
Cotcha, M.	23-7-6	3	110
Cudjo, L.	23-7-6	2	110
Fish	36-8-6	4	620
Harjo, C.	11-7-6	3	2,735
Harjo, M.	13-7-6	4	880
Jackson	11-7-6	4	935
Larney-B	26-7-6	1	515
Larney	24-7-6	4	2,190
Lena	10-7-6	1	705
Moore	11-7-6	2	140
Tewee	14-7-6	6	805
Thomas	11-7-6	1	335
Wilson	12-7-6	1	260
Champlin:			
Tewee	14-7-6	2	800
Continental:			
Cosar	26-8-6	7	1,107
Cosar, M.	25-8-6	1	97
Continental & Fisher:			
Milsey	11-7-6	2	473
Empire:			
Charty	24-7-6	1	45
Coker	13-7-6	2	760
Cotcha	27-7-6	1	64
Sandlin	3-7-6	1	15
Gypsy:			
Brown, C.	33-8-6	2	330
Brown, M.	33-8-6	1	928
Campbell	33-7-6	2	15
Conard	22-7-6	2	273
Cosar, W.	36-8-6	2	205
Cotcha	23-7-6	10	4,877
Denmark	11-7-6	4	1,410
Hulhoke	14-7-6	10	1,170
Mungee	1-7-6	1	0
Payne	5-7-7	1	0
Pattey	35-8-6	4	810
Renton	11-7-6	3	235
Independent:			
Carpenter	27-7-6	3	1,191
Davis, R.	13-7-6	4	1,370
Tewee	14-7-6	6	1,164
Williams	15-7-6	1	415
Independent & Highway:			
Harris	23-7-6	5	1,467
Indep. & White Eagle:			
Davis	2-7-6	4	505
I.T.I.O.:			
Campbell	1-7-6	1	133
Dungan	35-8-6	3	383
House, M. A.	1-7-6	1	42
House, W. E.	1-7-6	1	27
House-B	2-7-6	4	797
Hull	26-8-6	3	82
Jackson	1-7-6	3	668

(Continued on Next Page)

Company, farm—	Location	Wells	Prod.
McCulla	1-7-6	3	759
Nitey	2-7-6	6	136
Phoebe-A	36-8-6	2	27
Phoebe-B	36-8-6	3	73
Reed	1-7-6	1	6
Soketheche	1-7-6	3	333
Magnolia:			
Cruse	2-7-6	4	112
Denby	11-7-6	4	224
Harjo-A	14-7-6	2	45
Harjo-B	14-7-6	2	184
Pattey	35-8-6	4	24
Reed, E.	31-8-7	1	28
Reed, I.	22-7-6	3	472
Marland & Shaffer:			
Harrison	4-7-7	1	377
McCulloch & Sands:			
Harrison	4-7-6	1	0
Mid-Continent:			
Brunner	11-7-6	4	120
Eleck	23-7-6	1	40
Smith	5-7-7	5	11,360
Wadsworth	36-8-6	7	265
W. B. Pine:			
Hoyecha	26-8-6	7	1,660
Pine-Phillips:			
Patiey	35-8-6	1	198
Prairie:			
Chilcoat	25-8-6	2	480
Coker	1-7-6	2	775
Dungan	35-8-6	1	0
Gibson	14-7-6	5	1,525
Harris	14-7-6	4	520
House	2-7-6	4	95
Johnson	24-7-6	2	1,300
Lustey	5-7-7	2	90
Moppin	24-7-6	2	420
Reed	13-7-6	2	970
Talley	14-7-6	4	625
Thomas	5-7-7	1	245
Williams	15-7-6	2	585
Wood	26-7-6	2	390
Prairie & Amerada:			
Sunny	14-7-6	5	1,250
Prairie & Pine:			
Coker	1-7-6	1	0
Cudjo	26-7-6	2	720
Pure:			
Brinson	24-7-6	3	1,389
Cotcha	14-7-6	10	2,296
Harjo	11-7-6	4	1,137
Hollins	11-7-6	1	121
Reiter-Foster:			
Bunyard	14-7-6	4	655
Jefferson	31-7-6	1	12
Shaffer:			
Narcombe	36-8-6	2	135
Shell:			
Caesar	11-7-6	1	48
Glass	26-7-6	1	0
Hotulke	23-7-6	4	891
Jeffries	32-8-7	1	0
Johnson	13-7-6	4	1,623
Sinclair:			
Blanton	11-7-6	1	162
Cosar	30-8-6	3	1,155
Haney	12-7-6	1	85
Tewee	14-7-6	2	1,335
Sinclair & Kingwood:			
Pompey	24-7-6	1	15
Skelly:			
Carl	14-7-6	2	1,362
Snowden-McSweeney:			
Tiger	13-7-6	2	512
Superior:			
Potulka	31-8-6	1	2
Soketheche	1-7-6	1	0
Texas:			
Brooks	25-8-6	1	15
Coker	1-7-6	3	120
Janey	11-7-6	6	1,385
Texas & Independent:			
Hotulke	23-7-6	4	1,190
Hotulke	22-7-6	2	1,040
Tidal:			
House	1-7-6	2	465
Johnson	1-7-6	1	23
Twin State:			
Lowe	25-8-6	1	80
Total		338	80,073

Carr City Pool

Company, farm—	Location	Wells	Prod.
Barnsdall:			
Coker	11-8-5	8	3,437
Fife	14-8-5	2	320
Carter:			
Coker	2-8-5	1	2,065
Empire:			
Chuck	11-8-5	10	3,942
Gypsy:			
Coker	10-8-5	1	92
Fife	14-8-5	1	18
I.T.I.O.:			
Simpson	10-8-5	1	0
Tully	10-8-5	1	0
Magnolia:			
Fee	11-8-5	2	774
Killing	14-8-5	1	6
Prairie:			
Billington	11-8-5	9	2,450
Mitchell	15-8-5	1	0
Sinclair:			
Bean	11-8-5	2	485
Harjo	11-8-5	3	1,146
Total		43	14,735

Maud Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Ballard	1-8-4	1	95
Fehlig	7-8-5	2	160
Gossland	8-8-5	3	300
Gravel	1-8-4	1	25
Hallum	1-8-4	4	2,245
Amerada & Barnsdall:			
Wallace	17-8-5	3	300
Amerada & Hull:			
Green	20-8-5	3	135
Darby:			
Ketcham	19-8-5	1	11
Empire:			
Smith	8-8-5	1	1,100
Gypsy:			
Bourassa	7-8-5	4	75
Miller	18-8-5	8	490
Independent:			
Harding	18-8-5	5	265
I.T.I.O.:			
State	16-8-5	1	27
Laurel O. & G.:			
Billington	18-8-5	3	60
Magnolia:			
Billington	8-8-5	4	64
Green	20-8-5	1	221
Marland & Shell:			
Everett	18-8-5	2	179
Mid-Continent:			
Shelton	18-8-5	3	55
Phillips:			
Hudson	19-8-5	4	375
Wallace	17-8-5	2	190
Pine:			
Lingefelt	18-8-5	2	50
Smith	8-8-5	1	597
Prairie:			
Campbell	18-8-5	5	200
Prairie & White Eagle:			
Villines	20-8-5	1	35
Pure:			
Lindly	18-8-5	3	377
Urbansky	19-8-5	2	124
Wiley	8-8-5	4	1,445
Sinclair:			
Bellars	19-8-5	10	705
Calvin	7-8-5	2	230
Lewis	6-8-5	2	110
Skelly & Lenox:			
Green	20-8-5	1	220
Skelly & Margay:			
Lingefelt	18-8-5	4	280
Texas:			
Calvin	7-8-5	3	445
Tidal:			
Dunn	12-8-4	1	50
Everett	18-8-5	2	170
Smith	8-8-5	1	180
Twin State:			
Calvin	7-8-5	2	205
Wilcox:			
Smith	8-8-5	3	1,027
Total		119	12,822

Mission Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Rice	5-8-6	2	1,200
Carter:			
Fuswa	18-8-6	4	1,252
Melisse	9-8-6	1	835
Micco	8-8-6	2	110
Darby:			
Judy	1-8-5	1	100
Gypsy:			
Baby	6-8-6	1	15
Barkus, N.	6-8-6	10	7,292
Barkus, S.	7-8-6	1	232
Dosar	7-8-6	5	1,455
Hardy	7-8-6	7	1,127
Harjoche	7-8-6	4	175
Micco, L.	8-8-6	2	60
Micco, S.	8-8-6	1	77
Mission	5&6-8-6	7	2,600
Mosar	1-8-5	4	1,328
Independent:			
Lawson	1-8-5	6	1,560
Indep. & Kistler:			
Payne	7-8-6	4	2,920
Marland:			
Maines	7-8-6	4	1,246
McMahon et al:			
Harjo	7-8-6	2	662
Mid-Continent:			
Ripley	13-8-5	1	310
Mid-Kansas:			
Moore	7-8-6	1	10
Minnehoma:			
Neal	7-8-6	4	765
Pine:			
Harjo	6-8-6	2	1,025
Micco	8-8-6	1	28
Prairie:			
Crain	7-8-6	1	287
Melton	6-8-6	3	1,955
Micco	5-8-6	1	10
Townsend	6-8-6	1	100
Nellie	12-8-5	1	330
Prairie & Gypsy:			
Owens	12-8-6	2	465
Shaffer:			
Weaver	12-8-5	2	1,670
Pure:			
Weaver	12-8-5	1	0
Shelf & Marland:			
Herndon	7-8-6	2	626
Shell & Papoose:			
Maines	7-8-6	8	2,470
Sinclair:			
Hardy	7-8-6	4	1,966
Sinclair & Lenox:			
Judy	1-8-5	1	90
Tidal:			
Nelly	12-8-5	5	2,275
Twin State:			
Hayes	8-8-6	2	1,735
Judy	6-8-6	2	545
Ripley	12-8-5	2	885
Total		115	41,793

Bowlegs Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Roscoe	15-8-6	7	805
Atlantic:			
Baker	10-8-6	4	387
Fleet	23-8-6	3	105
Grayson	13-8-6	4	475
Jones, A.	16-8-6	2	0
Jones, C.	9-8-6	1	70
Barnsdall:			
McNac	28-8-6	1	22
Murrow	11-8-6	4	350
Carter Oil:			
Bowlegs	15-8-6	4	460
Burden	23-8-6	2	240
Harjoche	14-8-6	6	540
Hilly	23-8-6	3	190
Jones	11-8-6	4	480
Walker	15-8-6	4	440
Wise	23-8-6	11	1,685
Dixie:			
Culley	11-8-6	1	68
Empire:			
Lacy	14-8-6	6	292
Wise	23-8-6	2	154
Gypsy:			
Bowlegs	22-8-6	1	0
Bradley	9-8-6	1	0
Cumsey	10-8-6	4	610
Grayson	13-8-6	4	497
Harjoche	10-8-6	3	480
Jones	11-8-6	1	0
Walker	15-8-6	7	1,057
Wise	23-8-6	2	155
I.T.I.O.:			
Barnett	24-8-6	2	160
Barnett-B	23-8-6	1	40
Billington	22-8-6	4	296
Bowlegs	22-8-6	9	1,514
Davis	13-8-6	4	172
Fay	13-8-6	9	1,318
Goforth	15-8-6	12	1,614
Livingston	15-8-6	10	1,464
Lizzie	13-8-6	3	482
Walker	15-8-6	8	947
Williams	12-8-6	1	205
Wilmott	15-8-6	4	253
Work	24-8-6	1	40
Youngblood	24-8-6	2	84
Magnolia:			
Davis	13-8-6	3	412
Davis, M.	13-8-6	1	0
Hammond	10-8-6	8	652
Rhodos	12-8-6	5	112
Van Buskirk	9-8-6	4	400
McCulloch:			
Bowlegs	22-8-6	2	95
Mid-Continent:			
Baker	10-8-6	4	239
Smith	12-8-6	6	640
Minnehoma:			
Bowlegs	15-8-6	3	86
Prairie:			
Gahagan	23-8-6	3	295
Harber	10-8-6	8	1,690
Jones	3-8-6	1	0
Jones	11-8-6	4	310
Templeton	12-8-6	5	2,015
Whitney	23-8-6	4	310
Pure Oil:			
Reed	14-8-6	14	2,512
Strother-D	11&14-8-6	4	403
Strother-F	10-8-6	7	2,388
Shaffer:			
Lacy	14-8-6	3	320
Shell:			
Taylor	16-8-6	5	34
Sinclair:			
Cumsey	10-8-6	4	964
Ellen	11-8-6	5	644
Harjo	14-8-6	3	865
Jones	9-8-6	7	890
Taylor	10-8-6	4	678
Taylor, W.	10-8-6	3	523
Walker	22-8-6	4	715
Texas:			
Reed	14-8-6	11	655
Tidal:			
Grayson	13-8-6	4	445
Harjoche	10-8-6	6	860
Total		306	37,828

Seminole Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Fixico	23-9-6	3	85
Killingsworth	23-9-6	4	513
Rentie	23-9-6	3	317
Atlantic:			
Cudjo, N.	35-9-6	3	486
Barnsdall:			
Carter	24-9-6	6	215
Henry	14-9-6	2	490
Jones	34-9-6	4	600
Carter Oil:			
B. Carter	24-9-6	2	35
F. Carter	23-9-6	3	30
Creamer	34-9-6	1	7
Cudjo, R.	35-9-6	4	115
Cudjo, W.	34-9-6	1	5
Gilliland	27-9-6	1	165
Grisso	23-9-6	4	200
Grisso, M.	15-9-6	1	220
Killings, G. F.	14-9-6	4	35
Killings, M. E.	23-9-6	12	4,495
Knapp	13-9-6	1	25
Lukes	27-9-6	5	1,000
Pounder	34-9-6	2	195
Simpson	35-9-6	2	167
Strothers	34-9-6	4	470
Vierson	23-9-6	2	25
Empire:			
Gross	25-9-6	2	45
Wilson	34-9-6	2	317
Gypsy:			
Butler	35-9-6	4	292
Carter	24-9-6	8	683
Cudjo	34-9-6	4	170
Fixico	26-9-6	7	79
Harjo	25-9-6	3	500
Wolfe	26-9-6	5	492
Independent:			
Fixico, P.	23-9-6	3	480
Harjo	25-9-6	2	75
Butler	35-9-6	3	800
Fixico, T.	26-9-6	5	248
Jones	26-9-6	4	286
I.T.I.O.:			
Allen	25-9-6	2	43
Bowlegs	26-9-6	12	2,044
Goodin	23-9-6	4	203
Harjo	23-9-6	3	53
James	24-9-6	2	96
Reed	24-9-6	1	8
Kingwood:			
Johnson	22-9-6	3	46
Magnolia:			
Boren	2-8-6	1	4
Franks	25-9-6	3	248
Mid-Continen.:			
Rentie	14-9-6	9	675
Tayeche	24-9-6	7	175
Phillips:			
Strothers	27-9-6	2	120
Prairie:			
Cudjo	35-9-6	3	660
Franks	35-9-6	6	735
Giblet	35-9-6	3	1,190
Gross	25-9-6	5	30
Mason	36-9-6	1	10
Spencer	13-9-6	1	7
Strothers	27-9-6	8	1,560
Tiger	1-8-6	1	0
Pure Oil:			
Strothers	26-9-6	17	3,618
Strothers-B	36-9-6	4	614
Strothers-C	34-9-6	1	407
Shell:			
Harber	22-9-6	1	219
Lasley	22-9-6	2	97
Sinclair:			
Carter	13-9-6	2	22
Cudjo-A	35-9-6	6	575
Cudjo-B	35-9-6	4	700
Dicey	22-9-6	2	470
Fixico	23-9-6	4	444
Superior:			
Cudjo	35-9-6	4	140
Noble	15-9-6	1	0
Texas:			
Mayhue	14-9-6	1	205
Strothers	2-9-6	1	75
Tidal:			
Carter	24-9-6	4	358
Fixico	26-9-6	7	1,445
Harjo	25-9-6	1	17
Harjo, T.	23-9-6	3	45
Turman:			
Cudjo	35-9-6	4	521
Grisso	35-9-6	1	58
Jones	34-9-6	4	1,171
Total		276	33,681

Searight Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Johnson	4- 9-6	1	25
Strothers	3- 9-6	2	282
Barnsdall:			
Jackson	5- 9-6	2	26
Carter:			
Davis	4- 9-6	3	400
Frazier	3- 9-6	6	750
Skiff	10- 9-6	1	95
Kiker	2- 9-6	1	17
I.T.I.O.	11- 9-6	1	535
Mandler	3- 9-6	2	7
Jackson	10- 9-6	1	0
Scott	26-10-6	1	12
Stewart	10- 9-6	1	705
Carter et al:			
Strothers	11- 9-6	1	945
Slick	11- 9-6	1	1,815
Gypsy:			
Cudjo	4- 9-6	3	637
Nevins	32-10-6	1	837
Magnolia:			
Varnum	32-10-6	2	656
Mid-Continent:			
Grayson	34-10-6	4	30
Saloche	33-10-6	6	620
Mid-Continent & Homaokla:			
Nevins	32-10-6	4	1,525
Pine:			
Lula	4- 9-6	1	18
Prairie:			
Cannon	33-10-6	1	3
J. Carter	10- 9-6	1	3
Houch	33-10-6	1	4
Hurford	33-10-6	1	25
Kincaid	33-10-6	2	60
Wimer	22-10-6	1	15
Pure:			
Aldridge	3- 9-6	4	790
Shell:			
Strothers	3- 9-6	4	198
Sinclair:			
Polly	3- 9-6	4	1,600
Superior:			
Varnum	4- 9-6	1	0
Texas:			
Fleet	4- 9-6	1	20
Twin States:			
Varnum	4- 9-6	2	125
Wilcox:			
Chupco	4- 9-6	7	223
Total		74	13,006

Earlsboro Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Anderson	15- 9-5	2	298
Cowden	4- 9-5	7	959
Rogers	3- 9-5	2	86
Atlantic & Gypsy:			
Delaware	13- 9-4	1	0
Atlantic & Sinclair:			
Foreman	18- 9-5	1	105
Barnsdall:			
Brown	10- 9-5	3	1,169
Bruner, F.	2- 9-5	2	124
Bruner, N.	10- 9-5	1	284
Cudjo	14- 9-5	1	22
Davis, D.	11- 9-5	3	296
Davis, J.	11- 9-5	4	1,569
Davis, M.	11- 9-5	2	20
Gibson	9- 9-5	7	917
Hern	15- 9-5	1	0
Ingram	1- 9-5	7	325
Pack, S.	10- 9-5	4	94
Peter	10- 9-5	3	45
Sango	1- 9-5	2	1,499
Sebalka	15- 9-5	1	194
Sullivan, H.	11- 9-5	1	3
Sull-Harjo	10- 9-5	2	16
Wasutke	12- 9-5	3	467
Burke-Greis:			
Wisner	6- 9-6	2	425
Burke-Greis & Red Bank:			
Mays	1- 9-5	3	2,085
Carter:			
Davis	13- 9-5	3	190
James	6- 9-6	3	1,726
Carter et al:			
Gilliam	13- 9-5	2	1,310
Continental:			
Kays	2- 9-5	2	39
Spencer	12- 9-5	4	713

(Continued on Next Page)

Company, farm—	Location	Wells	Prod.
Cosden, J. S., Inc.:			
Anderson	13- 9-5	1	1,303
Empire:			
Barker	12- 9-5	1	20
Edmondson	3- 9-5	2	45
Empire & Marland:			
Anderson	13- 9-5	1	442
Empire & Amerada:			
Bullock	8- 9-5	2	1,287
Gypsy:			
Bruner	10- 9-5	4	1,412
Carter, B.	11- 9-5	7	2,045
Earl	16- 9-5	1	0
Hunick	5- 9-5	2	1,855
Lo.tie	31-10-6	1	40
Noble	12- 9-5	4	1,018
Peter	10- 9-5	1	115
Sango	1- 9-5	13	2,083
State	16- 9-5	3	15
Independent:			
Bruner	10- 9-5	3	75
Sullivan	10- 9-5	1	12
Knapp	8- 9-5	3	1,500
Indep-Margay:			
Gains	11- 9-5	2	200
Magnolia:			
Anderson	18- 9-6	1	56
Bryant	9- 9-5	6	47
Cowden	4- 9-5	2	22
Dixon	12- 9-5	1	16
Edmondson	3- 9-5	1	4
Germany	30- 9-5	1	20
Gilliam	13- 9-5	2	1,616
Holmsley	11- 9-5	6	10
Hyde	13- 9-5	2	327
Ingram	10- 9-5	1	17
Lena	10- 9-5	3	42
Moore	24- 9-5	1	1,161
Seay	12- 9-5	9	135
Simpson	10- 9-5	4	233
Sparks	11- 9-5	6	100
Sullivan	12- 9-5	3	0
Mid-Continent:			
McCumber	9- 9-5	6	60
Rogers	5- 9-5	2	1,320
Mid-Kansas:			
Anderson	14- 9-5	1	35
Phillips:			
Dunaway	14- 9-5	1	20
Reade	8- 9-5	1	690
Prairie:			
Baker	24- 9-5	5	1,405
Davis	13- 9-5	3	420
Graham, C.	3- 9-5	2	10
Graham, O.	10- 9-5	4	810
James	6- 9-6	2	0
Stidham	11- 9-5	9	1,051
Prairie & Skelly:			
Campbell	6- 9-6	7	2,810
Prairie & Whitney:			
Harjo	24- 9-5	1	20
Shaffer:			
Clark	1- 9-5	3	257
Shell:			
Bayless	17- 9-5	1	10
Hearn	13- 9-5	1	25
Spencer	12- 9-5	2	1,609
Sinclair:			
Alexander	36-10-5	1	1,050
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	35
Miller	24- 9-5	1	0
Sango	2- 9-5	4	1,780
Skelly:			
Mays	1- 9-5	4	917
Shepard	6- 9-6	4	1,622
Spencer	12- 9-5	1	123
Skelly & Atlantic:			
Cherry	6- 9-6	4	459
Lottie	6- 9-6	4	1,730
Superior:			
Ingram	1- 9-5	2	982
Walker	2- 9-5	2	1,295
Texas:			
Anderson	2- 9-5	8	120
Brown	10- 9-5	3	75
James	6- 9-6	2	250
Rogers	5- 9-5	5	1,170
Wilmott	10- 9-5	6	100
Tidal:			
Walker	35-10-5	3	1,200
Watkins	9- 9-5	7	1,910
Twin States:			
Barker	12- 9-5	3	45
Hern	2- 9-5	2	50
Total		305	57,738

Production of St. Louis Pool

Production of St. Louis Pool by companies and leases for May 25 follows:

S.T.R.	Company, farm—	Well No.	Prod.
16-7-4	Atlantic-Indep., Burke	1	655
30-7-5	Barnsdall, Stahl	3	825
25-7-4	Blackwell-Omar, Cherry	3	730
16-7-4	Darby, Youngblood	1	395
25-7-4	Gypsy, Bruno	4	120
25-7-4	Gypsy, Collins	4	480
26-7-4	Gypsy, Dodson	4	237
17-7-4	Gypsy, Green	1	220
23-7-4	Gypsy, LeClair	4	2,745
26-7-4	Gypsy, Roseman	3	830
30-7-5	Gypsy, Stahl	8	1,942
	Total		6,574
14-7-4	Home Gas, Town Lot	1	391
17-7-4	Houston, Wyatt	1	1,280
30-7-5	Independent, Blandin	5	540
19-7-5	Independent, Youts	8	9,530
	Total		10,070
16-7-4	Indep-Westland, Rhodd	1	1,117
23-7-4	Inter-Ocean, McGee	6	150
26-7-4	I.T.I.O., McGee	1	330
2-7-4	Irwin-Martin, Kelly	1	2,055
18-7-5	Magnolia, Bradenburg	5	1,850
26-7-4	Magnolia, Cherry-A	5	1,395
26-7-4	Magnolia, Cherry-B	3	290
26-7-5	Magnolia, G.W.Fyke-A	1	682
20-7-5	Magnolia, G.W.Fyke-B	2	452
20-7-5	Magnolia, Tull Fyke-B	2	945
20-7-5	Magnolia, Tull Fyke-D	2	13
19-7-5	Magnolia, Hembree	4	1,108
17-7-4	Magnolia, Latimer	1	921
15-7-4	Magnolia, J. M. Robbins	4	396
24-7-4	Magnolia, Mary Wilborn	2	422
24-7-4	Magnolia, S. A. Wilborn	5	908
20-7-5	Magnolia, Chas. Youts	5	291
19-7-5	Magnolia, C. A. Youts	4	498
20-7-5	Magnolia, H. E. Youts	7	8,342
	Total		18,513
25-7-4	McCullough-Blackwell, Bruno	5	1,105
25-7-4	McCullough-Mid-Cont., Smith	6	750
25-7-4	Mid-Kansas, Geizleman	4	1,150
30-7-5	Mid-Kansas, Lunay	3	230
	Total		1,380
25-7-4	Phillips, Cherry	2	160
30-7-5	Phillips, Stahl	4	900
	Total		1,060
25-7-4	Prairie, Deamond	4	215
25-7-4	Prairie, Ellison	4	405
30-7-5	Prairie, Gammon	8	2,755
19-7-5	Prairie, Hembree	4	3,397
30-7-5	Prairie, Linn	4	890
29-7-5	Prairie, Wolfe	4	3,405
19-7-5	Prairie, Youts	4	305
18-7-5	Prairie et al, Davis	4	162
18-7-5	Prairie-Maud, Nesbit	2	430
	Total		12,964
26-7-4	Pure, Dodson	2	159
26-7-4	Pure, Thomas	4	11,571
	Total		11,730
23-7-4	Shaffer, Cherry	4	225
30-7-5	Shaffer, Tyson	4	545
	Total		770
24-7-4	Sinclair, Blandin	13	1,485
7-7-5	Sinclair, Brandenberg	3	1,325
26-7-4	Sinclair, Bruno	2	2,480
27-7-4	Sinclair, Gilbreath	2	1,050
29-7-5	Sinclair, Nadash	5	520
25-7-4	Sinclair, Nealy	5	330
25-7-4	Sinclair, Nealy-B	2	170
18-7-5	Sinclair, Nesbit	8	2,815
19-7-5	Sinclair, O'Kitchee	7	450
	Total		11,625
25-7-4	Texas, Cherry	4	1,700
24-7-4	Westheimer-Daube, Freid	5	850
	Small pumpers	116	3,575
	St. Louis wells and production	356	90,594

PERSIAN GEOLOGICAL OFFICE FOUND MODEL

(Continued from Page 50)

in the gach (gypsum and anhydrite) of the Middle Fars series furnishes problems of unique importance, as is the case in the south. The geologists of the Turkish Petroleum Co., like those of the Anglo-Persian Oil Co., are alert to their surface and subsurface problems. The success of the first Turkish Petroleum Co. wells justifies the wisdom of the company in obtaining the approval of some two dozen geologists before making the individual locations. I was informed that an old friend of mine, Prof. Hugo de Bockh of Budapest, had passed on the locations in his capacity of consulting geologist to the Anglo-Persian, through its stock ownership in the Turkish Petroleum Co.

Time and space do not permit discussion here of any of the interesting geological and technological problems involved in those fields. One or two side lights alone will suggest the length to which differences of opinion may go in well-conducted companies operating fields which are seemingly similar. Anglo-Persian Oil Co. employs mainly Britishers in its responsible positions; Turkish Petroleum has a large proportion of American drillers and field officials; each company seems pleased with the results of its own policy. Anglo-Persian is drilling almost entirely by means of cable tools, which have proved the most satisfactory in its long years of Persian experience; Turkish Petroleum drills exclusively with rotaries; each company is positive that its own method is the best.

The oil fields of northeastern Iraq lie a long distance from the ocean and the crude will probably be transported to the Mediterranean Sea by a pipe line over 600 miles in length and laid entirely in British controlled territory if Haifa is made the terminus, or through a line less than 500 miles long to some point on the north Syrian coast, according to whether the wishes of the British or the French stockholders prevail. The country along either route is dangerously infested with bandits, as is proved by the active rifle fire to which I was subjected midway between Bagdad and Damascus three months later when returning westward across the desert. At that time my entire collection of Persian rugs was taken from me by 16 armed men and carried to the center of the Arabian desert.

After oil is being actually produced in Iraq and the transportation facilities are ready for it, the policy of "safety first" must prevail. Therefore, many experienced oil men consider that it will be wiser, even from the French point of view, to lay the pipe line entirely in Palestine and Iraq, paralleling it with a railroad and building the terminus and port at Haifa; for the British can probably better guarantee the safety of the line thereby than can the French according to the alternative plan.

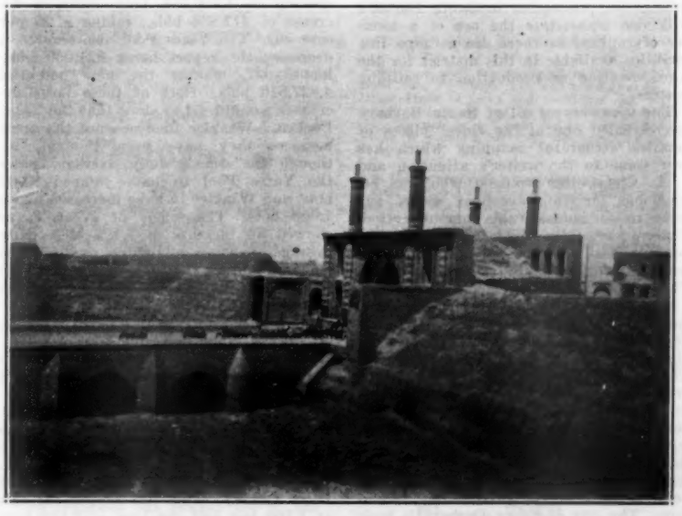
I was obliged to part with Turkish Petroleum hospitality and get back to work. An automobile was hired for the trip to Khanaqin, at which place I was guest of R. R. Blackford, superintendent of the Khanaqin Oil Co., in his house that overlooks the Halwan River and a picturesque stone bridge built long ago by the Persians. A small-sized volume might be written on my visit to the Khanaqin refinery and more especially to the Naft-khaneh Field, which lies 25 miles south of Khanaqin on both sides of the boundary line between Persia and the "Transferred Territories" of Iraq. R. E. F. S. Bampton, technical manager, and A. C. Sampson, (with whom I had previously journeyed one hot afternoon to view the great Arch of Ctesiphon, 20 miles out from Bagdad) insisted on furnishing the hospitality of their houses in the field. The operations were seen in company with Mr. White, resident geologist, and other officials.

Although less than three years have elapsed since the first well was "brought in" and although oil has actually been produced into the pipe line to Khanaqin for only a year and a half, the field is an up to date one with modern equipment; and, if a market existed for the oil, a great volume could be produced. Even at the present time all of the gasoline consumed in Iraq is brought from this field through the refinery at Khanaqin.

Some of the interesting features are the 1,500 pounds-per-square-inch closed-in oil pressure from a depth of 2,750 feet, the 15,000-bbl.-per-day production that has been proved from each of the two initial wells through their pipes of very restricted size, the perfect dome shown by the geological contours and the vast collecting area from which the oil has been derived. The equivalent of the Asmari limestone is here, the reservoir rock, as elsewhere, but great seepages at Imam Hassan a few miles inside Persia cause one to wonder whether oil may not also be found in the future in Cretaceous limestones. Some excellent seepages of Tertiary oil in the center of the Naft-khaneh Field itself, emerge from a fault crevice along a distance of several hundred feet.

My technical views on this field are included in reports made to the Persian government and they will not be repeated here; for, as stated in the beginning, this series of articles is not a technical one. It may be interesting merely to call attention to the similarity of some of the Naft-khaneh problems with those of our own Teapot Dome. Both fields lie astride an important line and they therefore both unfortunately share their technical interest with an admixture of politics. In both cases, also, the paramount technical question seems to be whether or not oil existing on one side of the boundary line can be tapped or its extractability affected by wells on the other side. This is the question, out of all those propounded to me, that it was probably easiest to answer.

As time was rapidly passing, I departed on Friday, May 4, on the direct road for Teheran, after spending a week in northeastern Iraq and the edge of Persia. The circular journey southward to Bushire and thence north through Persia and Iraq and thence to Teheran had amounted to about 3,000 miles. Exactly three months later my labors for the Imperial Government of Persia were over and my return journey was commenced across the hot plains of Iraq. I was then enroute for Beirut, Angora, Constantinople and Paris, to rejoin my family after an absence of more than 13 months from them.



The Shahabdulzzim Gate of Tehran, one of the city's 14 gates.

RAPID GROWTH IN ENGINEERING PRACTICE

(Continued from Page 47)

as the removal of hydrogen sulphide and properly treating the gas to make it safe and suitable for domestic uses.

This natural gas also has another very important use and that is in making gasoline by compression or absorption methods, and the natural gasoline industry has grown along with the whole system until it now is a very important unit and is producing nearly 6,000,000 gallons of this product daily.

The chemists and engineers engaged in the natural gasoline industry have found that it is possible to treat some of the lighter fractions of the gas in such a way as to make some very valuable products that are much sought after by other industries. These synthetic products such as alkyl chlorides, alcohols, aldehydes, esters, fatty acids, ketones and aromatics are now in the laboratory stage of development but the Natural Gasoline Association of America has mapped out a very comprehensive research program that promises much for the future development of this phase of the industry.

Big Consumption of Chemicals

To a large extent this same program will involve the refining branch of the

industry and if brought to a place of commercial importance will require the production of additional crude oil to satisfy the demand for these products, for at this time there is an annual consumption of over $900,000,000 worth of chemicals, a large part of which are organic compounds capable of synthesis from petroleum and this indicates the magnitude of this field for exploitation.

Petroleum chemistry dealing with the isolation and identification of sulphur compounds in petroleum, and the characteristics of pure hydrocarbons, and methods of separating components of oil, wax asphalt and resins, offer opportunity for ample research work in the future.

The chemist will also have numerous problems to deal with concerning the differentiation between good and bad lubricating oils, the determination of asphalt in petroleum and the emulsification and oxidation of lubricating oils, which will have great commercial values because of the rapid development of machinery, especially of the internal combustion engine type for long distance aeroplane and dirigible flight service.

This field of research for the petroleum chemist is by no means limited to the above suggested problems for the sulphur compounds in petroleum offer numerous and varied avenues for exploration to determine the means of separating metallic salts from these mixtures, and the use of sulphuric acids and sulphur dioxide for their separation, as well as the halogenation, polymerization and oxidation of sulphur combined with petroleum.

The possibilities for the research chemist and engineer are so great in this field of work that even to attempt to enumerate a major part of the problems would occupy too much space for an article of this kind, but those already cited indicate to the young man or woman planning their life's work that there is ample field for everyone in the petroleum industry, providing they are proficient.

Value in Safety Work

The industry has recognized the value of safety measures as applied in all its different branches, and has given special attention to the prevention of accidents due to the toxic effects of hydrogen sulphide gases, and in this particular field the Bureau of Mines engineers have rendered notable service.

Accidents caused by explosive gas-air mixtures, such as encountered in gas lift practice have been reduced to a minimum by the application of safeguards devised by the engineers in conjunction with the field men, and these two groups of men have also done much in reducing the hazards of spontaneous combustion due to the corrosive action of high sulphur petroleum on steel containers.

The universities and colleges all over the country are adding special courses to their curriculums intended to prepare the students for work in the technical departments of the various branches of the petroleum industry, and it is gratifying to find that this service is being accepted very freely and it appears that in the very near future the benefits of such training will be making itself noticed in a practical way.

The petroleum industry is now fully organized in all departments and also has special bodies within itself that are so governed at to give to the technically trained men and women opportunity to express and discuss their problems.

Associations Help Industry

The American Association of Petroleum Geologists has done excellent work in disseminating geological information that has done much to make the labor of the individual member more effective and to establish that science firmly in the industry.

The petroleum engineer who followed the geologist into the industry found need of a means for expression and discussion of his problems and this has led to the formation of Petroleum Divisions in the American Institute of Mining and Metallurgical Engineers and the American Society of Mechanical Engineers, where the new problems interesting to the industry can be presented for discussion and this practice had much to do with the application of several mechanical features to production problems.

After the engineering societies have played their part in developing ideas into workable shape it becomes very necessary to put them into use in the fields and this has made it necessary to organize the field men and the engineers into another body known as the Development and Production Engineering Division of the American Petroleum Institute and the success of this body is gratifying to all. Running through all this progress will be found the work of the technicians and engineers employed by the Government in the Bureau of Mines, who have pioneered many innovations and through their impartial attitude made available much information that might otherwise have remained concealed in the archives of the production companies' files for want of a good medium of distribution.

Journal Will Aid in Work

In keeping with all this fine spirit of co-operation and co-ordination throughout the petroleum industry, The Oil and Gas Journal has, since its inception, served as a universal medium for the distribution of news, both of the technical and nontechnical character, and to further serve its readers it established its petroleum engineering department.

It is and has been the purpose of this department to assist in every way possible in gathering together and presenting to all interested, whether the reader be college trained or of only ordinary grammar school education, or occupies a desk in the executive department of a large oil corporation or works in the fields with his hands and brain, such new developments in equipment or processes as are of interest.

To make this service effective and valuable it is essential that the readers do their part by offering suggestions as to things that interest them and contributing with articles or papers that can be printed for the information of all concerned.

This service will not in any way overlap or interfere with the work being done by the other organizations mentioned above or the many independent groups working upon petroleum industry problems, but will be an added outlet for this news and make it possible for the man interested anywhere, just so he can be reached by the mails, to keep as well posted and informed upon up-to-date improvements in the industry, as the man having the advantages of living in the city and belonging to one or all of the various organizations interested in this class of work.

AGREE ON RESTRICTION IN KETTLEMAN HILLS

(Continued from Page 46)

struct still more tankage in addition to that already built to hold production from Santa Fe Springs. The development of substantial production in Santa Barbara will also necessitate the use of a number of tankers as there are no pipe line facilities available in this district for the transportation of production to refining centers.

The discovery of oil at Santa Barbara has revealed one of the finest pieces of detailed structural mapping which has ever come to the writer's attention and J. L. Chase, the geologist who was responsible for this excellent work, has come in for considerable commendation. Chase successfully finished an almost impossible task after spending several months going over the ground in detail. There is very little surface indication of a substantial accumulation at Santa Barbara and this structure, therefore, had to be predicated on a number of contorted dips and projected on very poor evidence. The Olympic Oil & Refining Co. which drilled on Chase's recommendation stands to benefit to a large extent as this pioneering was done by the company itself without any outside assistance. The new Santa Barbara Field presents a very interesting feature from a geological standpoint because of the surrounding formation. The city of Santa Barbara is built on reddish Sespe of Oligocene age while the discovery well was finished in the Vaqueros in an area faulted down against the Sespe rocks on which the city is built. Crumpled beds of Monterey shale are exposed in the beach area and while this is in itself rather unfavorable they have straightened out and become more uniform with depth. A similar situation prevails at Elwood where surface evidence indicates a badly faulted area contrary to subsurface conditions which drilling has proven to be relatively uniform. Geologically the new Santa Barbara Field is structurally inferior to Elwood, but this does not detract any merit from the former which preliminary surveys indicate will be rather narrow and somewhat limited in extent. The low gravity oil secured in the discovery well at Santa Barbara, approximating 20 degrees, is considerably lower than might be expected in the Vaqueros, but this is probably due to faulting as the sealing in this area is not good.

COMPLETE ORGANIZATION OF MICHIGAN REFINERY

Organization of the Michigan Central Refining Co., a $300,000 Michigan corporation, which will operate a 3,500-bbl. retort and bubble tower skimming plant in the Muskegon oil field, has been completed and officers have been elected.

Capitalization of the company is divided into 30,000 shares at $10 each with $30,500 subscribed and paid in. Main offices of the company are in the Lyman building, Muskegon. A Chicago office will be maintained at 624 South Michigan avenue.

John D. Wrather, of Long Beach, Calif., head of the Amarillo Producers and Refiners Corp., of Amarillo, Tex., is president of the Michigan Central Refining Co. Other officers are: Vice president, Charles L. Maguire of Chicago, and secretary-treasurer, Thomas F. Caldwell, 405 Lyman Building, Muskegon. These officers with the following comprise the board of directors: Stanley L. Fildew, of Detroit; Harry C. Kinne, of Chicago; Guy I. Warren, of Muskegon; and Edward Lyon, of Chicago. Messrs. Kinne and Warren are president and secretary, respectively, of the Swastika Oil and Gas Co., of Chicago and Muskegon, operators and producers in the Muskegon Field. A large part of the crude oil supply for the plant will be obtained from producing leases of the Swastika company.

WEST TEXAS FIELDS

(Continued from Page 80)

30,000 bbls. daily, making a total of 130,000 bbls. daily, effective July 1, and to run for a six months period. Each producer is to handle his own oil as he sees fit.

Potential Decreases

The Winkler County potential decreased to 1,306,561 bbls. daily, a decrease of 477,836 bbls., taking a 25 per cent cut. The Yates Pool also showed a decrease, the report being 121,000 bbls. lopped off, making the new potential 4,827,516 bbls. Both of these large decreases would tend to show that the Yates Pool and Winkler Pool are not the great menaces they have been thought, although the week's daily average shows the Yates Pool to have jumped 8,000 bbls. and Winkler to have increased about 1,000 bbls. The whole of West Texas showed an increase of 7,125 bbls. daily average, causing a lighter draft to be made on storage than during the past two weeks, only 1,400 bbls. being taken from storage during the week, whereas the previous period showed a draft of 9,622 bbls. on storage. Pipe line runs, tank car shipments and refinery runs all showed a slight decrease over the previous week's runs.

One of the last tests abandoned on the Fort Stockton high was the Empire Gas & Fuel Co. and Trees Oil Co.'s No. 1 Trees, located in Section 63, Block 8, H.&G.N. Survey, in the northern part of Pecos County. This test topped the salt at 1,760 feet and the lime at 2,170 feet, was shot with 105 quarts from 2,133-2,220 feet with no results, and was plugged at 2,309 feet. This test lies northwest of the Pecos Valley Pool and was watched for pays corresponding to that pool, and in hopes of discovering some other pay on the "high."

Estimated Daily Average Production
WEST TEXAS
Week Ending June 1

County—	Wells	Prod.
Crane County	305	34,434
Crockett County	44	2,101
Ector County	2	3
Fisher County	7	902
Glasscock County	25	661
Howard County	309	41,725
Jones County	83	4,155
Loving County	12	856
Mitchell County	145	2,647
Pecos County	307	106,712
Reagan County	241	18,396
Runnels County	3	45
Scurry County	5	31
Upton Coun.y	237	12,886
Ward County	4	1,385
Winkler County	590	144,520
Total this week	2,319	371,462
Total last week	2,313	364,337
Difference	6	7.125

PIPE LINE RUNS
May 15 to May 22
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co., Port Arthur, Tex.	38,500
Gulf P. L. Co., to coast via Ranger, Tex.	23,790
Humble P. L. Co., via Comyn, Tex.	48,507
Humble P. L. Co., via Ingleside, Tex.	45,627
Illinois P. L. Co., Del Rio, Tex.	44,000
Magnolia P. L. Co., to DeLeon, Tex.	32,566
Pasotex P. L. Co., El Paso, Tex.	8,766
Shell P. L. Co., Healdton, Okla.	39,842
Shell P. L. Co., Houston, Tex.	5,160
Total	286,758

Tank Car Shipments

Orient, McCamey, Tex.	140
The Texas Co., Crossett, Tex.	785
T. P. Coal & Oil Co., McCamey, Tex.	1,104
American Pet. Co., Pyote, Tex.	8,938
Skelly Oil Co., Pecos, Tex.	1,387
Southern Crude P. L. Co., Wickett, Tex.	13,944
Total	26,298

Runs to West Texas Refineries

Amarillo Production Co., Pyote, Tex.	2,573
Bluebonnet Ref. Co., Wickett, Tex.	4,961
Burford Ref. Co., Pecos, Tex.	4,364
Col-Tex. Ref. Co., Colorado, Tex.	7,000
Cosden Ref. Co., Big Spring, Tex.	12,823
Great Western Ref. Co., Big Spring, Tex.	3,474
Humble O. & R. Co., McCamey, Tex.	9,776
Midland Ref. Co., Midland, Tex.	3,170
Tonkawa Ref. Co., Pyote, Tex.	4,113
Valley Ref. Co., Pyote, Tex.	5,239
Big Spring Ref. Co., Big Spring, Tex.	2,490
Total	59,983

Summary

	Previous week	Last period
Pipe line runs through trunk lines	265,835	286,758
Tank car shipments	30,459	26,298
Runs to West Texas refineries	49,490	59,983
Total daily distribution	345,784	373,039
Total daily production	359,737	366,083
Daily average from storage	13,953	6,956

WEST TEXAS COMPLETIONS
Week ending June 1

Andrews County

Deep Rock Oil Co.'s No. 1 Hostetter, located 2,310 feet south and east of Section 20, Block A-46, was dry and abandoned at 4,604 feet.

Howard County

Sweeney and others' No. 3 Chalk, located 2,440 feet north and west of Section 124, Block 29, was shot with 100 quarts at 1,675-1,705 feet and had an initial production of 25 bbls. This well was drilled to a total depth of 1,720 feet.

Jones County

Humble Oil & Refining Co.'s No. 1 Bickley was drilled to a total depth of 2,477 feet, topped the lime at 2,448 feet, topped the pay at 2,472-77 feet and had an initial production of 107 bbls. Phillips Petroleum Corp.'s No. 1 Walter was drilled to a total depth of 2,865 feet, topped the pay at 2,863-65 feet and had an initial production of 50 bbls.

Mitchell County

Wilson Brothers and others' No. 1 Elwood was dry and abandoned at 728 feet. Simms Oil Co.'s No. 1 Elwood-A, located 660 feet north and 1,980 feet west of Section 35, Block 18, was dry and abandoned at 2,014 feet.

Pecos County

Empire and Trees' No. 1 Trees, located 2,310 feet south and 330 feet east

of Section 63, Block 8, topped the salt at 1,760 feet, topped the lime at 2,170 feet, was shot with 105 quarts at 2,133-2,220 feet with no results and was dry and abandoned at 2,309 feet. California Co.'s No. 5 Smith, located 200 feet north and 1,550 feet west of Section 16, Block 194, topped the salt at 890 feet, topped the lime at 1,550 feet, topped the pay at 1,557 feet, was drilled to a total depth of 1,579 feet and had an initial production of 18 bbls. Trans-Arkansas National Co.'s No. 1 Sellman, located 990 feet north and east of Section 9, Block 194, was dry and abandoned at 2,007 feet.

Presidio County

L. C. Brite's No. 2 fee, located 2,500 feet south and 2,300 feet east of Section 51, Block 12, was completed at 1,000 feet as a water well.

Sterling County

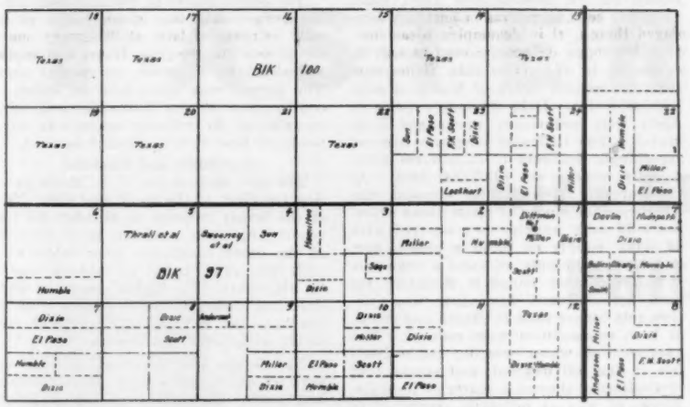
Wilson and others' No. 1 Elwood, located 330 feet north and east of Section 54, Block 18, was dry and abandoned at 728 feet.

Winkler County

Southern Crude Oil Purchasing Co.'s No. 32 Hendricks T-88-M, located 1,760 feet north and 990 feet east of Section 33, Block 26, topped the lime at 2,335 feet, topped the pay at 2,708 feet, was drilled to a total depth of 2,732 feet and had a potential production of 27,370 bbls.

PECOS COUNTY
YATES POOL
Week Ending May 28

Company and lease—	Wells	Prod.
M. H. Black:		
Fee	1	13
California Co.:		
Yates, Lease 1	17	7,810
Smith, Lease 1, Sec. 27	3	447
Smith, Lease 1, Sec. 23	7	1,657
Smith, Lease 1, Sec. 21	3	965
Smith, Lease 2	2	153
Smith, Lease 3	12	1,985
Tippett, Lease 1	1	35
Cosby Drilling Co.:		
Smith	1	257
Gulf Prod. Co.:		
All leases	36	12,926
Humble Oil & Ref. Co.:		
Smith-A	10	1,633
Smith-B	5	877


Texas
Texas
BIK
100
Texas
Texas
Texas
Texas
Texas
Texas
Thrall et al
Sweeney et al
Sun
BIK
97
Humble
Texas
Texas
Texas
Miller
Miller
Scott
Miller
Miller
Scott
Miller
Miller
Scott

Hendricks-C, 35, B-5	1	5
Hendricks-H, 35, B-5	1	1,939
Hendricks-I, 34, 26	2	585
Prairie Oil & Gas Co.:		
Hendricks, 40, 26	6	1,548
Cowden, 3, B-12	6	3,822
Pure Oil Co. (Lion):		
Hendricks, 41, B-5	11	1,804
Hendricks-B, 34, B-5	13	4,021
Hendricks-C, 45, 26	14	8,414
Hendricks-D, 44, 26	1	212
Republic Prod. Co.:		
Hendricks-A, 45, 26	13	3,754
Hendricks-B, 41, B-5	5	229
Shell Pet. Co.:		
Hendricks-A, 45, 26	6	1,414
Hendricks-B, 29, B-5	6	1,184
Hendricks-C, 29, B-5	8	1,397
Hendricks-D, 41, B-5	6	501
Hendricks-E, 40, B-5	3	772
Hendricks-F, 46, 26	8	2,029
Hendricks-G, 39, 26	1	108
Shell-Texas Co.:		
Cowden-A, 3, B-12	6	1,285
Hendricks 45, 26	6	1,391
Hendricks-A, 29, B-5	11	2,774
Hendricks-B, 40, 26	6	799
Hendricks-C, 40, 26	6	1,825
Hendricks-D, 40, 26	6	541
Hendricks-E, 39, 26	5	440
Skelly Oil Co.:		
Hendricks, 40, 26	12	6,187
Hendricks-B, 39, 26	2	24
Hendricks-C, 39, 26	1	434
Southern Crude Oil Pur. Co.:		
T-67 Hendricks-A, 42, B-5	3	138
T-67 Hendricks-3-A, 4, B-12	5	432
T-67 Hendricks-B, 44, 26	5	613
T-67 Hendricks-3-B, 33, 26	4	508
T-67 Hendricks-C, 33, B-5	5	586
T-67 Hendricks-2-D, 28, 26	4	759
T-67 Hendricks-E, 42-B-5	4	136
T-67 Hendricks-F, 33, B-5	5	707
T-68 Hendricks-3-A, 35, B-5	3	167
T-68 Hendricks-B, 46, 26	2	177
T-88 Hendricks-A, 44, 26	6	794
T-88 Hendricks-B, 4, B-12	4	833
T-88 Hendricks-C, 28, B-5	8	913
T-88 Hendricks-D, 4, B-12	6	3,125
T-88 Hendricks-H, 28, B-5	6	1,108
T-88 Hendricks-I, 30, B-5	7	1,224
T-88 Hendricks-J, 30, B-5	5	948
T-88 Hendricks-K, 41, 26	7	1,701
T-88 Hendricks-L, 4, B-12	4	921
T-88 Hendricks-M, 33, 26	31	12,221
T-88 Hendricks-N, 28, 26	5	1,611
T-88 Hendricks-O, 28, 26	3	777
T-88 Hendricks-P, 28, 26	1	181
T-88 Hendricks-Q, 27, 26	2	747
T-88 Hendricks-R, 27, 26	3	884
T-88 Hendricks-S, 34, 26	4	1,255
T-88 Hendricks-T, 34, 26	7	615
T-88 Hendricks-U, 41, 26	7	1,523
T-88 Hendricks-V, 29, 26	1	73
T-88 Hendricks-W, 5, B-12	1	268
T-88 Hendricks-CX, 21, 26	1	454
T-89 Hendricks-A, 35, B-5	3	320
T-89 Hendricks-B, 35, B-5	2	559
T-89 Hendricks-C, 35, B-5	3	546
T-89 Hendricks-D, 35, B-5	1	255
T-89 Hendricks-E, 40, B-5	3	194
T-89 Hendricks-F, 40, B-5	3	302
T-89 Hendricks-A, 46, 26	1	289
T-89 Hendricks-I, 10, B-12	2	184
T-89 Hendricks-J, 9, B-12	4	2,275
T-90 Hutchings, 47, 26	1	261
Texon Oil & Land Co.:		
Hendricks-A, 41, B-5	6	586
Hendricks-B, 45, 26	6	1,358
Winkler O. P. Co.:		
Hendricks, 33, 26	1	70
Total Hendricks Pool	565	139,823

LECK AREA

Company, farm, section, block—	Wells	Prod.
Atlantic-Kesslar & Logan:		
Leck, 3, 74	2	637
Amerada Pet. Corp.:		
Leck, 3, 74	2	649
Empire G. & F. Co.:		
Daugherty, 3, 74	3	506
Magnolia Pet. Corp.:		
Scarborough, 1, C-22	1	180
Gulf Prod. Co.:		
Scarborough, 1, C-22	1	72
Shell-Llano Oil Co.:		
Scarborough, 1, C-22	3	156
Shell-Danciger:		
Leck, 3, 74	2	130
Skelly Oil Co.:		
Leck, 3, 74	1	504
Prairie Oil & Gas Co.:		
Leck, 16, 74	1	277
Daugherty, 3, 74	1	233
Scarborough, 1, C-22	1	off
Warner Quinlan:		
Leck, 3, 74	1	385
Total Leck Pool	19	3,729

O'BRIEN POOL

Company, farm, section, block—	Wells	Prod.
Arizona Mining Co.:		
Hendricks, 10, B-12	1	18
Marland Oil Co.:		
Morton, 10, B-12	2	265
Wentz Oil Corp.:		
Morton, 10, B-12	1	250
Simms Oil Co.:		
Sealy, 50, F	1	25
Richardson et al:		
Stockton, 50 F	1	132
Total O'Brien Pool	6	690
Grand Total Winkler Pool	590	144,242

BUREAU OF MINES REPORT FOR APRIL

(Continued from Page 45)

March, 1929, of 3 per cent, and over April, 1928, of 10 per cent.

Daily average gasoline production in April amounted to 1,155,000 bbls., a new record, and an increase over April, 1928, of 18 per cent. Imports of gasoline were 822,000 bbls., the highest since October, 1926. Stocks of gasoline on April 30 amounted to 47,015,000 bbls., a decrease from the revised figure of March of over 1,000,000 bbls. Daily average exports in April were practically unchanged from March. The indicated domestic demand accordingly amounts to 32,019,000 bbls., a daily average of 1,067,000 bbls. At the current rate of total demand, the April gasoline stocks as given above represents 39 days' supply, as compared with 44 days' supply on hand a month ago, and 42 days' supply on hand a year ago.

The indicated domestic demand for both kerosene and lubricants was considerably higher than in March and stocks of both commodities were reduced. The approach of warm weather made itself felt in fuel oil demand, and stocks east of California showed a material increase. Stocks of wax at refineries continued to increase as demand remained below the 1928 level.

FRENCH AUTHORIZE IMPORTATION OF OILS

(Continued from Page 148)

51,750 tons; and Huiles des Petroles, 29,500 tons.

Fuel oil authorizations are Bedford (Standard), 68,000 tons; Jupiter, 41,000 tons.

Gas oil: Jupiter, 60,000 tons; Huiles des Petroles, 33,000 tons, and Economique 25,000 tons.

Import licenses already granted aggregate 1,918,000 tons of gasoline, 421,000 tons of fuel oil, 331,000 tons of kerosene, and 204,000 tons of gas oil. The combined total is some 500,000 tons in excess of total importations during 1928.

KEROSENE ADVANCES IN OKLAHOMA MARKET

(Continued from Page 44)

in April in expectation that prices would be higher in May. In New York State, jobber purchases were said to be high just before the gasoline tax became effective on May 1. Just how important these storage purchases were in the total demand figure cannot be determined. Practically all observers are agreed that the 14.5 per cent figure for gasoline will not be maintained throughout the year as there have been no developments in the consuming market to indicate an abnormal increase this year.

Although refinery gasoline shipments have been large the supply has shown an even greater increase. The total supply (domestic production plus imports) for the first four months was almost 19 per cent greater than the same period in 1928. This excess of supply over demand has brought additions to storage so that on May 1 the gasoline stocks of 47,015 bbls. were 6,826,000 bbls. or 14 per cent greater than the same date on May 1, 1928. The April demand, however, exceeded the supply and stocks decreased 1,190,000 bbls.

Mid-Continent Situation

The Mid-Continent situation in regard to crude oil run to stills and gasoline production and stocks for April and March, 1929 and April, 1929, is summarized in the accompanying table.

As was shown in the earlier reports of The Oil and Gas Journal, Mid-Continent refiners increased their crude oil runs to stills in April from a daily average in March of 522,900 bbls., to 556,900 bbls. in April. Gasoline production had a similar increase. However, gasoline shipments exceeded the production and stocks dropped from 7,006,000 bbls. on March 31, to 6,897,000 bbls. on April 30. It will come as surprise to many that gasoline storage at Oklahoma-Kansas refineries dropped 227,000 bbls. during March with a 14,000-bbl. decrease in Arkansas and North Louisiana.

Compared with April, 1928, refiners in April of this year were running 84,000 bbls. more crude oil to their stills daily. Gasoline stocks on April 30 in the Mid-Continent were 1,897,000 bbls., or 35 per cent greater than on the same date last year.

The conclusion to be reached from these April figures is that the gasoline situation on May 1 for the country as a whole was encouraging. Heavy shipments had saved the situation up to that time. The future was dependent on either a continuance of this heavy demand or a curtailment in refinery operations to a point in line with a normal demand.

Gasolines and Naphtha

The spot demand for U. S. Motor gasoline the first of the week was slow. Two of the larger refiners on Monday did not report any sales and the sales of most of the other companies were below normal. The price range to jobbers was 9 to 9¼ cents. The higher gravities were dull and domestic buyers were able to purchase the 400 and 375 endpoint material with price concessions.

No change has developed in the export situation explained in these columns last week. The fact that export prices as quoted at Gulf Coast points by the Petroleum Export Association, Inc., have not been advanced assures that spot orders will not be accepted by the refiners. Naphtha sellers report a fair demand with the price advances of a week ago well supported.

The high prices on sales of high gravity grades were 9½ cents for 60-62 400 endpoint; 9¾ cents for 64-66 375, and 10 cents for 350 and 360 endpoint material. These prices were shaded a quarter cent in Monday and Tuesday sales by several buyers.

Kerosene and Furnace Oil

Oklahoma refiners last week advanced their kerosene prices and the first of this week these prices were being maintained. Several refiners are moving the 41-43 water white grade at 6 cents and 6½ cents for the 42-44 water white grade. The low on the 41-43 grade the first of the week was 5⅞ cents. The buying was confined to the domestic market. The fact that farm work has been delayed in the Middle West due to heavy rains is offered in explanation of the fact that the kerosene tractor demand has been greater than usual.

Several furnace oil contracts between Mid-Continent refiners and jobbers of the Middle West have been closed recently. These contracts for the most part do not differ materially from those in effect last year. Less attention is being paid to gravity with the stress being placed on the flash and color. The contracts are based on published quotations.

Natural Gasolines

The developments of the past week have been disappointing to the natural gasoline manufacturers. With a 9 to 9¼-cent price for U. S. Motor gasoline it was confidently expected that the A grades would be boosted to a minimum of 8 cents by June 1. The prices, however, instead of being higher, are lower than they were a week ago. The bulk of the A and AA grades were moving at 7½ cents on Tuesday, 7¼ cents for B and BB, and 7 to 7¼ cents for Grade C. If any heavy buying develops these prices will advance rapidly due to the fact that steady buying is preventing accumulations of distress material.

Lubricants and Wax

Neutral oils are steady in price with a fair movement. Steam refined cylinder stocks are hard to find for spot shipments and at least three refiners made advances in quotations during the past week. Bright stocks are strong and little material will be available from Mid-Continent refiners outside their contract requirements.

There is practically no demand for petroleum wax and sellers have dropped their prices on the 124-126 so that it is being offered as low as 2½ cents.

DISMANTLE BATTERIES OF CRUDE OIL STILLS

NEW YORK, June 1.—The Texas Company has started the dismantling at its refinery at Port Arthur of two batteries of crude stills which have been operated for the past 25 years. Originally the battery consisted of four stills, eight additional stills being added 10 years later. From November 13, 1903, to date, it is estimated, runs of crude oil and distillates through these units has totaled 82,000,000 bbls., and production approximately 12,000,000 bbls. of gasoline, 26,500,000 bbls. of kerosene, 27,500,000 bbls. of gas, lubricating and miscellaneous oils, and 14,500,000 bbls. of crude oil.

During this same period the stills have burned as fuel oil 2,000,000 bbls. of oil, and a total of 381,000,000 bbls. of water have been used for cooling purposes. The stills were built originally under the direction of R. C. Holmes, now president of the company, who in 1903 was superintendent of the Port Arthur plant.

Texas-Empire Pipe Line Work Delayed By Continuous Rains

The Texas-Empire Pipe Line Co.'s 12-inch line from the Oklahoma Fields to Chicago will be completed in the latter part of July according to announcement. Five hundred men are at work on the construction of the 624-mile main line and 200 miles of branch lines. Rainy weather has delayed the work.

The Doherty News of June 1 says the force is divided into 12 main line gangs and two river crossing gangs. Two main line gangs are now engaged on the 122-mile Oklahoma section from Cushing to a point near Chetopa, Kans., the contract for which was given to Charles F. Rayle of Wichita. The Kansas-Western Missouri section from Chetopa to Eldorado Springs, Mo., an 86-mile section, in charge of Kelley-Dempsey of Tulsa, also has two main line gangs. The third, a 416-mile section from Eldorado Springs, Mo., to Wilmington, Ill., was given to Williams Brothers, of Tulsa, who have eight main line gangs and two river-crossing gangs on the job.

The crossing of the Illinois River has been completed, but owing to rainy weather and high water a test of this crossing has not yet been possible. The Heyworth-Lawrenceville section, a 130-length has been contracted to Henry L. Lemons of Pampa, Tex.

Robert Strong, formerly of the Empire Engineering Department, is in general charge of supervision of all construction work under the general direction of F. A. Stivers, general superintendent of the Texas-Empire Pipeline Co. of Tulsa. The section or division supervisors are: Oklahoma section, F. E. Spanley; Kansas-Western Missouri section, A. G. Love; Eldorado Springs to Mississippi River (including crossing), M. J. Cook; Mississippi River to Wilmington, Ill., J. H. O'Brien; Wilmington to East Chicago and Lockport sections, J. H. O'Brien; Heyworth to Lawrenceville section, J. H. O'Brien.

All of the main line construction is of electrically welded A. O. Smith bell and spigot 12-inch pipe from Cushing, Okla., to Wilmington, Ill., with the exception of the river crossings which are of bell and spigot seamless construction. From Wilmington to East Chicago, Ind., the line will be of 10-inch diameter and from Wilmington to Lockport, where the Texas refinery is located, the line will be of 8-inch diameter. Another branch line, 130 miles in length, of seamless construction and Victaulic couplings, 8 inches in diameter, will be constructed from the main line at Heyworth, Ill., to Lawrenceville, Ind., serving the Indian Refining Co.

In addition to the Illinois River, which has already been crossed, the principal river crossings to be made are the Mississippi, near Hannibal, Mo., the Missouri River between Sedalia and Jefferson City, Mo., and the Arkansas River near Tulsa.

Nine pump stations, eight of oil engine type and one electric motor driven, with a total rated horse power of 9,030 and 40,000 barrels daily capacity will be erected at proper intervals along the line, which it is estimated will be completed and tested about July 15.

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LARGE TANKER IN SERVICE OF CALIFORNIA STANDARD

LOS ANGELES, Calif., June 1.—The new tanker of the Standard Oil Co. of California known as the California Standard has left here on its maiden voyage carrying gasoline to the United Kingdom. The tanker is one of the largest of the petroleum industry with a capacity of 130,000 barrels.

It was built by the Fried Krupp Germaniawerft A. G. at Kiel, Germany. The tanker is powered with Diesel engines and incorporates several novel features in design. The tanker is a single deck tanker of the shelter deck with freeboard type, fitted with short forecastle, short bridge and deck houses aft, for the carriage of petroleum products in especially designed tanks and package freight in the forehold.

Hull construction is of the Isherwood brackless system of framing. Arrangement of the cargo tanks is unique, and differs from the orthodox practice—instead of one centerline bulkhead and two decks, forming two main cargo tanks and two summer tanks abreast, across the vessel. One of the outstanding features of the tank design permits of better, longitudinal distribution of a minimum quantity of water balast, which reduces rolling when carried in wing tanks; also reduces stresses on hull structure when the ship is in ballast.

Living and messroom accommodations for a crew of 45 are arranged with large and comfortable rooms, especial care having been taken to provide ample light and air as well as heat, thus to make the quarters cheerful and comfortable in all climes.

Propelling machinery to drive the tanker at 11.5 knots consists of two Krupp two-cycle single-acting reversible, port scavenging, air injection Diesel engines of the latest design, delivering 3,600 horsepower. The engines are equipped with air-operated turning gear, reversing gear, with air and fuel control interlocked. The guaranteed fuel consumption of the main engines at full load is not to exceed 0.41 pounds per brake horsepower. Other mechanical equipment consists of machinery for lighting, pumps for cargo and other equipment necessary properly to handle light petroleum products.

Newest devices for safe navigation are included in the ship's equipment. There are a complete Sperry gyro-compass and gyro-pilot equipment, and 18-inch Sperry searchlight, a powerful RCA radio sending and receiving set and a radio direction finder.

BRITISH IMPORTS GAIN

The gasoline consumption of Great Britain is increasing more rapidly than the output of its refineries, according to John K. Davis, Consul General at London. In a report made public by the Department of Commerce, Mr. Davis said:

"During the first quarter of this year 5,713,000 bbls. of gasoline were received from abroad as compared with 4,142,000 bbls. in the corresponding period of 1928. This advance in imports is only part of the picture of increased consumption because during this period exports of gasoline fell off appreciably and domestic production increased to some extent.

"British imports of all oil products during the first three months of 1929 totaled over 15,000,000 bbls., an increase of approximately 17 per cent over the preceding year. During this period crude oil receipts rose to 3,327,000 as compared with 3,099,640 for the first quarter of last year."

Who's Who
IN PETROLEUM REFINING AND MARKETING

By C. O. Willson

Standard Oil Co. (Indiana)

At the time of the Standard dissolution in 1911 the activities of the Indiana company were confined to the operation of refineries and marketing their output in several states of the Middle West. Since that time it has become one of the three largest of the Standard units with a specially formidable position as a refiner and marketer of petroleum products.

In the past 18 years the company has maintained its dominant position as a refiner and marketer in the Middle West. Gradually through the acquisition of properties, its refining capacity has expanded until now through subsidiary companies the parent concern has the skeleton of a nationwide distribution except for the West Coast with intensive marketing already provided for at many points.

So far as refining and marketing are concerned the two outstanding steps in the Indiana company's expansion were the acquisition of controlling interests in the Midwest Refining Co. and what is now known as the Pan American Petroleum & Transport Co. Along with these acquisitions came the purchase of other producing and pipe line properties so the refining and marketing operations are backed with adequate crude oil supplies and transportation facilities.

The Midwest Refining Co. is now owned 99.9 per cent by the parent company. It is easily the largest producer and refiner of crude oil in the Rocky Mountain area. Originally the refinery output was marketed in the Rocky Mountain states through an agreement with the Continental Oil Co., which was the large Standard marketing unit in that section. In the past two years, however, through the purchase of jobbing interests in Montana, Wyoming, Colorado and other points the company has entered directly into Rocky Mountain marketing. The Wyoming refineries also supply part of the marketing requirements of the original Standard of Indiana marketing territory in the Middle West.

The Midwest Refining Co. controls the Utah Oil Refining Co. which operates a 6,000-bbl. refinery at Salt Lake City, Utah. The products of this plant are distributed in the Rocky Mountain area.

Pan American Operations

When the parent company a few years ago became interested through stock purchase in the Pan American properties it ceased to be an inland refiner and marketer and became a direct factor in Coastal markets including exports. The Pan American Petroleum & Export Co. in which the Standard of Indiana now owns a controlling stock interest, is a holding company for numerous subsidiary companies operating both in this country and foreign countries. Due to the fact that these subsidiaries do not always carry the name of the parent company the magnitude of their operations are not always appreciated.

The Pan American corporation operates directly as a marketer in several states of the Southeast including Arkansas and Tennessee. The American Oil Co. of Baltimore, a subsidiary of the Mexican Petroleum Corp., one of the Pan American companies, is a larger distributor along the East Coast extending to the New England states. Its bulk stations extend as far inland as Ohio. These market outlets have been rapidly extended in the past year until it is understood that with the Standard of Indiana facilities they include practically all of the territory east of the Mississippi River.

The marketing operations of the original Standard of Indiana company are generally known. Commonly conceded to be exceptionally successful as a marketer of petroleum products, the parent company is the largest distributor of gasoline, kerosene and lubricating oils in the States of Illinois, Iowa, Minnesota, Wisconsin, Indiana, North Dakota, South Dakota, Missouri, Kansas and the northern part of Oklahoma. The company also furnishes petroleum products for the Standard Oil Co. of Nebraska operating in Nebraska. These states of the Middle West have approximately 30 per cent of the total gasoline and motor oil consumption of the United States.

Last year the Dixie Oil Co., a 100 per cent owned subsidiary of the Standard Oil Co. of Indiana, purchased a refinery at Superior (near Shreveport, La.) This company does not have its own market outlets and the bulk of the refinery output is absorbed by other subsidiary companies.

The following table gives a list of the Standard of Indiana and subsidiary companies' refineries:

Location—	Daily crude oil capacity bbls.
Standard Oil Co. of Indiana	
Wood River, Ill.	20,000
Whiting, Ind.	66,500
Sugar Creek, Mo.	15,000
Total	101,500
Mexican Petroleum Corp.	
Baltimore, Md.	8,000
Destrehan, La.	25,000
Total	33,000
Midwest Refining Co.	
Casper, Wyo.	55,000
Greybull, Wyo.	10,000
Laramie, Wyo.	3,000
Total	68,000
Utah Oil Refining Co.	
Salt Lake City, Utah	6,000
Dixie Oil Co.	
Superior, La.	3,000
Grand total	207,500

In addition to these domestic refineries the Pan American is one of the large operators of foreign refineries. The company for several years has had a refinery in Mexico with a capacity in excess of 100,000 bbls. daily. Recently the company started operating a 100,000-bbl. plant on the Aruba Island in the Dutch West Indies. This plant is operating with Venezuelan crude oil obtained from a subsidiary producing company. The Pan American also recently completed a new refinery in Germany. A large increase in its export business is assured for this year.

Sixth of a series of articles describing briefly the operations of the major refining and marketing companies in the United States.

DISTRIBUTORS TO EXTEND

CHATHAM, Ontario, June 1.—Thayers, Ltd., of London, Ont., operating a chain of distributing stations throughout southwestern Ontario are arranging to extend to the territory further east between Hamilton and Toronto.

SUPREME COURT HOLDS TANK REGULATIONS LEGAL

WASHINGTON, D. C., June 1.—The city of Marysville, Kan., enacted an ordinance requiring that all oil tanks within the city limits should be buried at least 3 feet under ground and the Supreme Court of the United States has held that this ordinance is valid.

This action was said to be a proper exercise of the police power to provide public safety and not so arbitrary and capricious, as applied to the petitioners. The Standard Oil Co. and Sinclair Refining Company as to deprive them of their property without due process of law. These companies maintained tanks for the storage of gasoline and kerosene of about 12,000 gallons capacity to serve their needs at Marysville.

The ordinance excepted from its requirements tanks of a capacity of 500 gallons or less if used for the storage of crude oil, distillate or fuel oil and of less than 10 gallons if used for the storage of gasoline, kerosene or naphtha.

PREPARE SAFETY PAMPHLET

The petroleum section of the National Safety Council has prepared a pamphlet on "Safe Sales Truck Driving." The pamphlet explains eighty-seven rules to govern the operation of trucks when used in the transportation of gasoline and other petroleum products. Several suggestive safety posters also have been prepared.

This pamphlet was drafted by R. E. Donovan, chief safety engineer, Standard Oil Co. of California, assisted by a committee composed of: F. A. Scofield, Associated Oil Co.; Stanley C. Davis, The Texas Co.; George F. Prussing, Union Oil Co.; R. E. Hilsinger, Union Oil Co.; J. W. Sinclair, Union Oil Co.; C. P. Anderson, Richfield Oil Co.; D. M. Rupert, Shell Oil Co.; A. R. Wilkie, Standard Oil Co. of California; in co-operation with the Engineering Committee of the Petroleum Section and the Petroleum Representative H. N. Blakeslee.

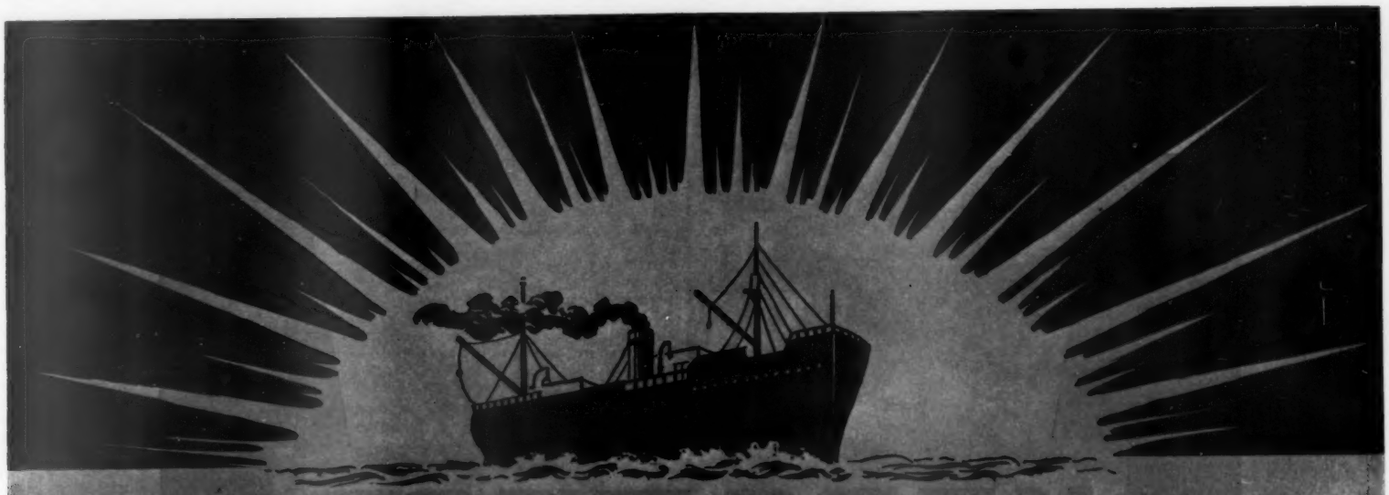
ADOPT S.A.E. NUMBERS

In the past eighteen months, ninety-nine refiners and marketing companies in the United States have notified the Society of Automotive Engineers that they are using the S. A. E. viscosity numbers in the sale of their lubricating oils. The S. A. E. viscosity numbers were adopted by the society as a means of enabling car owners to secure a lubricating oil to meet their requirements.

Sellers of lubricating oils are using the number in connection with their own branded names. Automobile manufacturers whose output constitutes the majority of the cars made in this country, and also several industrial-engine and tractor manufacturers, are using the S. A. E. viscosity numbers as a means for recommending suitable grades of oil for their engines.

SHELL-MONTANA PLANTS

GREAT FALLS, Mont., June 1.—The new Shell Oil Co.'s distribution plant here is finished and ready for storage of oils and petroleum products. The Shell Co. has announced that similar plants will be located at Bozeman, Billings, Missoula, Butte, Kalispell and Lewistown and work has already started on some of these. At Kalispell, a tract near the Great Northern Railroad station has been secured for a warehouse and distributing plant.



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STANDARD OIL COMPANY
Polarine
INDIANA
PURE OIL
SHELL
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OIL

SYMPOSIUM ON STRAIGHT HOLE DRILLING PRACTICE

(Continued from Page 49)

rotation on the rock bits was claimed to lessen the wear on cones, bushings and drill pipe and to prevent the pipe from whipping the walls and causing unnecessary caves.

Depending upon the formations and up to certain limits, the more weight put on the bit the more hole cut, was the majority of opinions in the questionnaires. To just what maximum limits of weight this ratio extends was not stated, except that the weight limits recommended in drilling straight holes was held to be a great deal less than the weight that would drill the maximum footage per day. There is not enough data available at the present time to say just how much less hole per unit time is being cut under the lessened weight necessary to drill straight holes, but from the information at hand, this gap is not so large as most contractors seemed to think.

Mud Fluids

The consistency of mud fluids is considered important in drilling a straight rotary hole only in so far as it prevents the hole from caving. It was the consensus of opinion that cavings in the bottom of the hole caused a tendency to drill off to one side of the true bore. Mud of improper consistency would allow side walls to break down under the action of the turning drill stem and this sloughing in would enlarge the diameter of the hole, thus depriving the drill pipe of its needed side wall support. No specific data was offered that would enable one to show the extent to which the proper consistency of the mud fluid would aid in keeping a hole straight.

This subject of the proper use of mud fluids would seem to warrant considerable more attention in the Mid-Continent from other angles aside from that of aiding in the drilling of straight holes. From 8 pounds per gallon to 12 pounds per gallon was recommended for the proper weight of mud in straight hole drilling.

As water weighs approximately 8.33 pounds per gallon, mud weighing only 8 pounds per gallon would probably be fairly light. Many contractors said they had never paid any attention to the mud except to regulate it as to its cuttings content, for protection to their pumps, and for the type of formation being drilled. They carried their mud as thin as it was possible and still be able to prevent the hole from caving, in order to keep the bit free from cuttings, thus facilitating the drilling speed.

From the Bureau of Mines' investigation of over 100 wells it was established that in the greater Seminole area the general practice has been to start drilling with clear water; the weight of the mud as the drilling progressed usually depending upon the amount of mud the hole made. Samples from 1,500 feet averaged only about 9 pounds per gallon. As the drilling progressed this weight increased to about 10 pounds per gallon, but whenever it rained it would decrease to 9 or 9.5 pounds per gallon. The maximum weight which the Bureau of Mines found anywhere, except when the mud was weighted to control high gas pressures, was 11.5 pounds per gallon, with the general average about 10 pounds per gallon.

The use of mud laden fluid in "spudding in" a well was not considered of very great importance by a large majority of the contractors. A few, however, made the point that from 1,200 to 1,500 feet of hole is often drilled before the drilling fluid is much more than water, and they feel that this is poor practice. A little work is being done now on the use of mud laden fluids of about 10 pounds to the gallon for "spudding in," and the acid bottle records of the first 1,500 feet of these holes indicate that there is an appreciable advantage in this practice.

The opinion of the effect of so-called high circulating fluid pressures in the drilling of straight holes seemed to be pretty well divided. There were theories offered on both sides of the question, but due to the lack of any sustaining data this question will be left for discussion which may bring out specific information that will throw more light on this subject.

There has been much discussion, both oral and written, on the effect of the large mud pumps now in common usage. A review of the answers on this question would seem to exonerate the big "mud hog" from any great amount of blame for crooked holes.

The claim is that the larger pumps run at slower speeds in handling the same volumes than do the smaller pumps, and therefore have a longer life and that where certain formations are encountered the large pumps are necessary to keep the bit free from cuttings which otherwise would seriously impede the speed of drilling. While the smaller pumps still have some advocates, the larger volumed, higher pressured pumps with the 16, 18 and 20-inch stroke are the favorites.

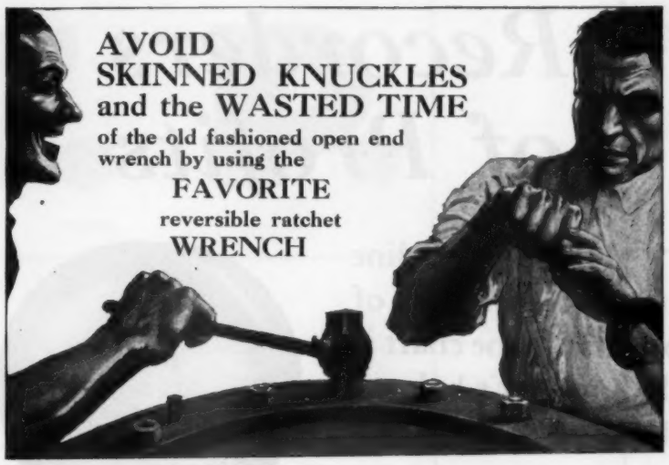
The majority of the contractors do not change the speed of their pumps when drilling from one formation to another, as they are of the opinion that practically all of the formations encountered in Oklahoma are hard enough to prevent easy washing. A few contractors, however, that have had better than average luck in drilling straight holes, advise that they slow up the pump somewhat when leaving a shale formation and entering a lime or other hard formation.

Equipment

There was a remarkable majority of opinion expressed to the effect that the present rotary equipment was very well suited for the drilling of straight holes.

The use of heavier and stiffer drill collars was suggested particularly by that group of contractors that does not favor the use of special side reamers and the further development of hydraulically, electrically or mechanically operated weight control machines. Mechanism that would accurately regulate the actual weight imposed on the bit was thought by many to be the next logical step in improving our present equipment.

The main objection to the use of side reamers was the increased hazard in the case of a fishing job. Some contractors felt they could drill as straight a hole without the aid of side reamers. However, the straight hole records on several wells drilled lately in the same area showed consistently straighter bores from top to bottom for those holes using the side reamers than it did for the holes drilled without the aid of any guides. Without the reamer the holes would show a deviation from vertical of from 3 to 9 degrees for the entire hole while those using the guides were only 1 to 2½ degrees from vertical. Of the wells drilled recently, of which we have records of those which have stayed within a maximum of 5 degrees from vertical the larger majority have been drilled at least part way down with guides of some description. Some of the contractors have worked out special equipment for centering their bits. One of these, a triple three point roller bearing straight hole guide, has been developed that works within 3 feet of the bit in starting the hole. The rollers in the guide are smooth and have no reaming action; in fact they exert a rolling effect against the walls which has a tendency to smooth up and keep well mudded the sides of the hole, thus helping to prevent caves. After surface casing has been set this guide is moved to a point 15 feet above the bit and is left at this location during almost the entire drilling of the well. In soft formation where there might be a boulder projecting part way into the well and the bit might have a tendency to crowd out a little, while passing the boulder this guide would help to bring the bit back into vertical position. Twenty feet above this guide a double three point reamer with cutting edges is used, and when this reamer comes in contact with any projection it will have a tendency to cut any irregularity of the hole



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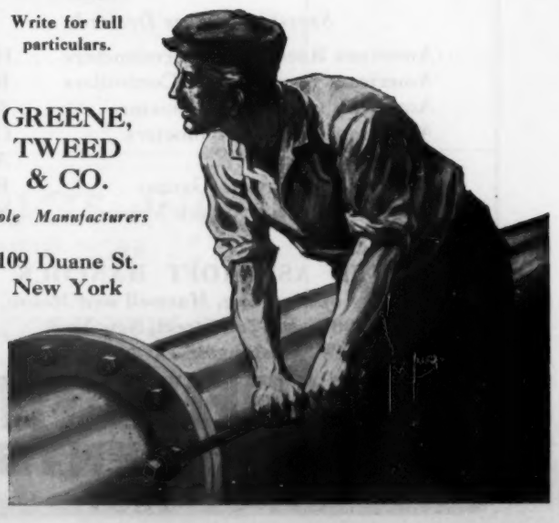

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off, thereby straightening out the hole. This double three point reamer has directly above it a 30-foot joint of 6-inch with a joint of 8-inch welded over same, this being termed a "lace joint," and directly above this lace joint is another double three point reamer with cutting edges. Experience in using these guides and reamers has resulted in very straight holes.

A number of contractors said they used a reamer for the first 2,500 to 3,000 feet and found if the hole was straight to this point there was not much danger if reasonable care was used of the hole not going straight the rest of the way.

We have already spoken of the opinion expressed by the contractor that a longer and stiffer drill collar would be of material aid in keeping the bit centered on a vertical axis. One contractor in particular who had been using the regular 10-foot drill collar, 7¾ inches in diameter had a special drill collar made, 28 feet long and 9½ inches in diameter and weighing 200 pounds to the foot. He is using this in drilling 11-inch hole and reports very favorable results over the lighter and shorter drill collar. The 9½-inch diameter with the extra length would prevent, theoretically, if the walls of the hole were firm and regular, the axis of the bit from getting very far away from the axis of the 11-inch bore. Enough clearance is left, however, to wash over the drill collar with 10-inch wash pipe. In making these longer drill collars it was suggested that they be made in sections of 10 feet instead of 20 feet to 30 feet lengths with the idea that the shorter sections are not so apt to kink. The use of these heavier drill collars should eliminate the kinking of the bottom joint which in the past has caused considerable trouble.

As to the advisability of increasing the wall thickness of the 6-inch drill pipe the general feeling was that the range of weights now manufactured, which runs from 22 pounds to 30 pounds to the foot, was adequate for present purposes. Twenty-five pounds to the foot is commonly used in the Mid-Continent at the present time and this weight seemed to meet with general approval. It was conceded that a thicker walled pipe would give greater rigidity but there was the fear that a heavier wall would crystallize more rapidly under flexing and in addition to this it was considered doubtful whether a slight increase in the rigidity of the drill stem, when its extreme length was taken into consideration, would have much effect on the course of the bit.

Without exception the contractors put themselves on record as believing that the use of some form of weight indicator was essential in determining the proper relative weights to carry on the bit.

Opinion as to the value in the use of tool joints between each joint of drill stem was fairly evenly divided. A number of those that favored this practice did so from the angle of preventing the bending of the 30-foot length joints that are now in use and in eliminating the use of the "greyhound" single, thus increasing the ease and speed of adding drill pipe to the string while drilling. From the straight hole standpoint many could not see much value in this use of the tool joint as the A.P.I. coupling has the same external diameter as does the standard tool joint. It was thought also that any additional rigidity in the drill stem which would help materially in drilling a straight hole should be located in the first 200 feet from the bottom.

The drilling of straight holes will have a material effect on increasing the life of drill pipe but little effect, if any, on the rest of the equipment, according to answers to this question. Straight holes will not only cut down the early fatiguing of pipe due to the severe flexing it receives in crooked holes but will reduce the abrasive wear the pipe receives from the side of the walls, which of course is at its worst in crooked holes.

The use of casing protectors in straight hole practice, which seems to be well though of in California, does not meet with the approval of the Mid-Continent contractors. This is probably due to a difference in casing programs as much of the California rotary drilling is done through casing while in the Mid-Continent most of the rotary drilling has been done in open hole.

The relation between the diameter of the drill stem and the diameter of the drilled hole was considered of great importance by the majority of the contractors. An average of the recommendations as to the proper ratio of diameters is shown below:

6⅝-inch	drill stem—	11 to 12-inch bore
4 -inch	drill stem—	8 to 10-inch bore
3 -inch	drill stem—	6-inch bore
2½-inch	drill stem—	5-inch bore

For any bore over 14-inch, 8-inch drill stem such as is being used to some extent in the deeper fields was suggested.

The choice in boiler sizes and pressures lay between the 100-horsepower boiler carrying a steam pressure of from 200 to 225 pounds to the square inch and the 125-horsepower boiler carrying 250 pounds to the square inch.

The higher steam pressures (225 to 250 pounds to the square inch) were not actually required for drilling, was the claim, but saved considerable time in coming out of the hole, aside from being more efficient and economical than the lower pressures. A good many expressed the opinion that the horsepower that the boiler or the steam pressures carried had little or no effect on the straightness of the drilled hole. There were a few that favored the 75-horsepower boiler and claimed that it could be handled much more easily in the field and that if properly insulated would give as much steam and a higher efficiency than the 125-horsepower boiler.

The statement was made that the boiler rating as used in the oil country and approved by the American Petroleum Institute are in error and that the so-called 75-horsepower boiler will have an actual steam output of within 8 to 10 per cent of the larger rated boiler.

Commencing Drilling Operations

Judging from the answers to the question concerning methods of starting and keeping the drill straight during the "spudding" operations, the contractors have given this problem considerable thought and have worked out some very simple and ingenious methods of insuring a straight start. In the main these methods consist of ways and means of leveling and centering the rotary table and maintaining the vertical alignment of the grief stem until there is sufficient weight of drill pipe below the rotary table to counteract the weight above.

The following method of "spudding in" a well is sort of a composite description of the procedure followed by many of the contractors. The draw works are set so that the drive from the line shaft to the rotary drive sprocket will cause the center hole in the rotary table to be directly in the center of the derrick. The rotary table is leveled with a spirit level. After the lines are strung through the traveling block, line up the center of the spring hook with the center of opening in rotary table with a plumb bob by moving crown block and sheaves on the top of the derrick. When ready to make hole the grief stem is held in a vertical position, in most cases, by one of several systems of bridles or guides and the alignment checked every 2 feet with a level. The wire line from the crown block to the traveling block is kept as tight as possible and the table rotated at a good rate of speed. When setting the surface casing if the diameter of the drilled hole is 3 or 4 inches greater than the outside diameter of the casing it will permit the straightening of the surface string to some extent even if the bore is slightly off vertical. The importance of making sure that the surface casing is set absolutely vertical when attempting to drill a straight hole was strongly emphasized by all the answers to this inquiry.

Costs and Speeds

In answer to the question as to whether or not the drilling of a straight hole takes a longer time than when no at-

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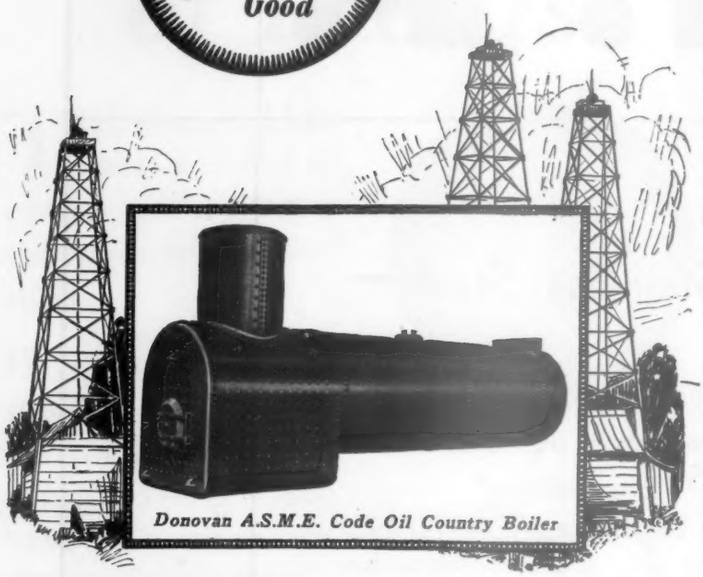

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tention is paid to the straightness of the hole the natural answer at first would be to say of course it does. That was the answer of the majority of the contractors and it is undoubtedly true that in the first attempts to drill sraighter rotary holes it took longer to complete a hole than formerly. However, as the methods of procedure became more clearly defined and a lot of the time saved that had been lost due to the experimentation which is always the case when established methods are changed, the drilling time of straight holes began to lessen. Many of the contractors who have drilled a comparatively large number of straight holes mentioned this fact in their answers and were of the opinion that as our technique progressed we would be drilling straight holes in an average time that would compare very favorably with any former average speeds.

At the end of the discussion on this question a table is given of wells drilled in the various areas of the greater Seminole both before and after the straightness of the bore became important. This table includes only a few wells but is representative of the results of those contractors who have had considerable experience working on the straight hole problem.

As to the costs of drilling a straight hole the general opinion was that the cost was more. As to how much, opinion varied from "just a little more" to 50 cents to $1 per foot extra. Several voiced the opinion that the actual cost might not average more in the long run but that in asking the contractor to plug back at his own expense if the hole got too crooked the oil companies were increasing the contractor's risk and that he should have extra compensation to cover the added hazard.

As to just how many companies are asking this plugging back requirement of their contractors, and what percentage of the holes that will have to be plugged back, or as to how successful this method is in straightening the holes, we have not sufficient information to draw any conclusions.

From the data obtained from the questionnaire as to the drilling time and the number of cones used in drilling straight holes it would seem that at the present time it is costing the contractor more money than it did under former practice. As time goes on and our knowledge of how to drill straight holes becomes more definite and accurate it does not seem so certain that straight hole drilling is going to increase the contractors' drilling costs. From information on hand from the more recent wells, as we have mentioned before, the footage per day and the number of cones used to the well is coming very closely to the former averages. There should be a saving to the contractor due to the increased life of the drill stem and the lessening of the wear and strain on his drilling machinery, resulting from the decrease in the power required to rotate the drill pipe under these weight modifications and where he pays for the power, a saving in fuel costs.

record for his last three holes, which were drilled with rock bits from the top to the bottom, showed an average of 15 per cent less cones used than on his previous wells.

These men claimed that with a proper combination of weight on the bit, speed of rotation, length and stiffness of drill collars and, in some cases, the use of smooth face reamers as guides, they were able to so improve the cutting action of their bits that they actually made more footage per set of cutters than formerly when excessive weight ruined cutters and bushings long before their normal cutting life had expired.

The response on the question as to whether the contractor should be held responsible for plugging back at his own expense the holes which the companies considered too crooked was about evenly divided.

There were those who felt that the present price per foot did not justify any increased responsibility on the contractor's part while others said that it depended on the area in which the well was located and more particularly if the well was a "wildcat" or located in a proven area. It was felt that the problem of drilling a straight hole was far less difficult in an area where the formations that would be encountered by the drill were already known. Also as to what number of degrees of variation from the vertical constituted a crooked hole in the opinion of the oil companies would make a considerable difference in the contractor's viewpoint on this matter.

The opinion was expressed that the straight hole problem was still in an experimental stage and that it was not fair to ask the contractor to carry all the burden. Co-operation between the company and contractor would produce better results than a penalty clause was the opinion of many. Others that were of this same belief made the point that as time went on they thought a penalty clause might be justifiable but that at this stage it should be applied only in well proven areas and that the contractor should receive more money per foot if asked to guarantee the drilling of a straight hole.

The limits in degrees of variation from vertical within which the oil companies are warranted in asking the contractor to stay at the present time depend for the most part on the district in which the well is located, judging from the answers received. From 5 to 30 degrees for the maximum allowable angle was suggested. Those contractors who have had the most experience and the best success drilling straight holes in the greater Seminole area suggested a maximum allowable angular deflection from vertical for proven areas of from 5 to 10 degrees, and for wildcats from 10 to 15 degrees.

Several oil companies are at the present time writing a maximum angle from the vertical limit in their contracts along with a penalty clause which requires the contractor to plug back at his own expense should the well go beyond the stipulated number of degrees.

TABLE NO. 1

Well No.	Rotary depth	Drilling days	No. sets of cones used	Ft. per set of cones	Cost per foot for cones	Total vertical correction
A	3,785	37	37	102.3	$1.12	2.4 feet
B	3,792	32	43	88.2	1.28	1.42 feet
C	4,609	41	46	100.2	1.13	3.8 feet
D	4,090	33	47	87.0	1.30	8.0 feet
E	4,085	33	46	86.9	1.28	7.0 feet
Average	4,072	35	44.74	92.92	1.19	4.52 feet
F	3,928	30	41	95.8	1.22	185.0 feet
G	3,885	34	45	86.4	1.31	196.4 feet
H	3,773	26	31	102.5	1.11	34.34 feet
I	4,014	39	43	93.4	1.21	147.6 feet
Average	3,900	32	40	94.5	1.21	140.8 feet

Wells No. A to E were drilled from top to bottom with rock bits.
Wells No. F to I were average wells for their area and not extreme cases of crooked holes.

As to the increase in the number of cones now being used the majority of replies indicated an increase of from 5 to 30 per cent more cones per well. In contrast to this several contractors reported that on the average it took no more cones to drill a straight hole than it did before. One contractor's

Manual Versus Automatic Control

In considering the merits of the automatic type of drilling control for drilling straight holes compared with those of the manual type of control, from the answers to this question, there is a strong feeling that the automatic control will, (when one is ultimately developed that really controls the amount of weight

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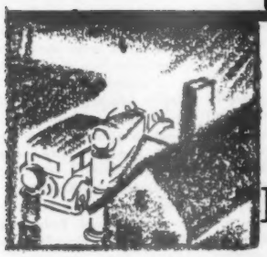

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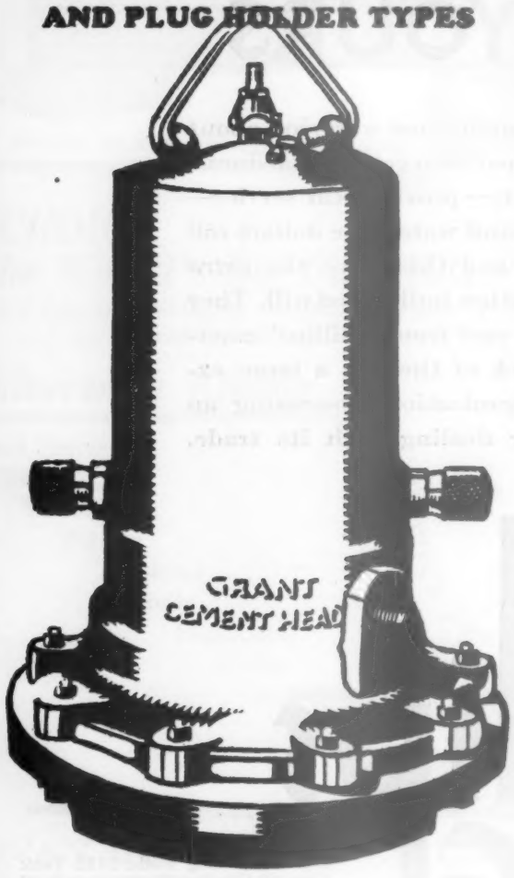

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carried on the bit) afford proper solution to this weight control problem. As in many other types of machine feed control, it is not humanly possible for any man to control the feed of a machine over a period of from 8 to 12 hours as carefully and consistently as can an automatic control. A large number of the answers were to the effect that the present types of automatic control are not considered satisfactory; in fact, many went so far as to say they much preferred the manual control in the drilling of a straight hole. Well represented, however, was the group that believed that even at the present time the automatic control, more particularly the electric control, had distinct advantage over the hand feed in this matter of straight hole drilling. The rest of the contractors were undecided and preferred to reserve their opinion until more comparative data was available.

At the present time a well known Mid-Continent engineer is working on a very simple attachment that can be used on any of the existing types of automatic control which, if it will do what its designer hopes, will control the actual amount of weight carried on the bit.

No type of power was conceded to have any inherent advantages in the drilling of a straight hole and most of the opinions expressed were frankly founded on the basis of personal preference for one type of power or another. Two or three expressed the opinion that electric power, perhaps due to the possible variations in steam power, was best adapted for the drilling of straight holes. There was very little information to sustain their ideas and it is hoped that in the discussion of this paper something more definite along this line will be offered.

The importance of the driller in the drilling of straight holes is outstanding in the unanimity of opinion that upon his competence rests the bulk of the burden. Even in the case of the automatic control his experience, judgment and manual dexterity is considered of fundamental importance.

Of almost equal certainty was the opinion that the driller, regardless of the type of control used or his ability, can not tell when the hole first starts to be crooked. After the hole has actually become crooked the experienced driller can sometimes tell by various indications that he is no longer drilling a straight hole. The accuracy with which he can determine this depends largely on the depth of the hole, the character of the formation, the extent of the crook, and the watchfulness and ability of the driller.

Structural Influences

This last question probably should have been left to the geologists to answer as it is difficult for a contractor to ascertain much reliable information as to the lithology of the different formations encountered and even more difficult for him to correlate any data he may obtain over the large areas that he operates. Therefore these structural questions were answered in a very practical way and for the most part they applied only to one or at the most several wells in different areas where a contractor or contractors have had difficulties on particular holes.

The formations that seemed to have caused the greatest difficulty in keeping the hole straight, if it were the formations that were responsible, lay between 1,900 and 3,000 feet according to the majority of the replies. It is, of course, a debatable question whether or not the tendency of the rotary holes to go crooked at these depths in the Greater Seminole area is caused by some variation in the mechanics of the drilling procedure or from some structural condition in the formations encountered.

Table 2 shows the areas and the vertical corrections in the Greater Seminole district, as revealed by the acid bottle survey.

TABLE NO. 2

Vertical correction—	Semi-nole	Bow-legs	Earls-boro	Sea-right	Little River	St. Louis	Carr City	Mis-sion	Maud	Misc.	Total	Pct. of total wells
Under 10 feet	2	1	2	0	0	2	1	2	4	3	17	7.9
10 to 25 feet	1	3	4	0	6	4	2	5	10	1	36	16.7
25 to 50 feet	1	2	3	2	7	1	2	6	6	2	32	14.8
50 to 100 feet	2	5	2	1	10	4	6	4	7	1	42	19.4
100 to 200 feet	2	2	2	0	15	5	4	12	3	7	52	24.0
200 to 300 feet	0	1	2	0	10	1	0	4	1	1	20	9.3
Over 300 feet	1	5	2	1	6	0	0	2	0	0	17	7.9
Total	9	19	17	4	54	17	15	35	31	15	216	100.0

Contractors reported that edge wells or wells where there was a decided change in the dip of a hard formation as compared with the general dip of the formation they had been drilling were the most difficult to keep straight. Evidently local breaks or fractures make it very difficult to keep the drilll going straight.

With all these factors tending to prevent the drilling of straight holes it may be interesting to know how much success has been encountered in the effort to straighten rotary holes. To this end the following table is offered as a partial record of the results to date:

TABLE NO. 3

No particular precautions taken to obtain vertical holes

Area—	No. of wells	Total ft. surveyed	Average depth feet	Total corr. feet	Average corr. feet	Max. corr. feet	Min. corr. feet	Average angle	Maximum angle
Seminole	9	37,509	4,168	393	110	408.3	1.35	13°12′	42°—35′
Bowlegs	19	82,241	4,328	3,277	172.5	592.0	1.0	16°14′	40°—30′
Earlsboro	17	69,884	4,111	1,727	101.6	317.5	1.17	12°46′	35°—10′
Searight	4	17,713	4,428	512	128.0	382.0	31.0	13°49′	35°— 0′
Little River	54	233,535	4,325	8,594	159.0	781.0	14.0	15°35′	46°— 0′
St. Louis	17	70,592	4,152	1,403	82.5	306.0	2.0	11°26′	30°—18′
Carr City	15	63,730	4,218	1,095	73.0	185.0	4.4	10°41′	25°—45′
Mission	35	151,418	4,326	3,878	110.8	320.0	0	13° 0′	28°—50′
Maud	31	126,852	4,092	1,568	50.6	295.0	6.0	9° 1′	23°— 0′
Scattered	15	56,718	3,781	1,456	97.0	279.0	0	13° 0′	38°—30′
Total	216	910,232	4,214	24,503	113.4	781.0	0	13°19′	46°— 0′

TABLE NO. 4

Summary of wells upon which straight hole practice has been applied

No. of wells	Total ft. surveyed	Average depth feet	Total corr. feet	Average corr. feet	Max. corr. feet	Min. corr. feet	Average angle	Maximum angle
58	233,341	4,023	1,267	21.85	65.92	1.0	5°59′	19°—0′

The general dip of the formations encountered in the Greater Seminole area was not considered by the majority of the contractors to be serious enough to cause any undue trouble in drilling straight holes but local faulting, crossbedding, or fractures were held to constitute serious obstacles.

Fishing jobs of all kinds and particularly sidetracking work were considered factors that are beyond our present control in preventing a crooked hole. Broken and sharply tilted formations were also listed under the category of uncontrollable factors that might cause the hole to deviate from vertical.

Cable tool holes have not been mentioned in this discussion as cable tools have been employed, in the areas included in this paper, to follow up the rotary tools which had drilled the greater part of the hole. Furthermore from the few holes of which we have a survey for the cable tool portion, the cable tools seem to start off at about the same angle at which rotary tools had stopped. If the rotary hole at this point was quite a little off vertical and the cable tools had as much as several hundred feet to drill, the tendency was for the cable tools to gradually straighten up and drill a straighter hole.

That there is a very keen interest in this subject at this time was made very evident by the discussion that followed

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the reading of the paper and the engineers for the producing companies seem to have been able to prepare very reliable data that make it clear that all things considered it will be best for the interests of the industry as a whole to use every means as its command to drill holes as nearly vertical as possible.

The use of the term "degree deflection from vertical" seems to be somewhat confusing to some and it was suggested that the A.P.I. standardization committee take steps to make this descriptive term clear to everyone engaged in the drilling and production departments and Secretary Carl Young for that committee assured the meeting that this would be done as the same request has come from some of the other districts.

There was considerable discussion as to the advantages resulting from the use of reamers above the bit and also the application of spacers or rollers to reduce flexture in the drill pipe in the hole to a minimum.

There seems to be certain very definite advantages to be gained by the proper use of both the reamers and rollers or grades but they were not suggested or recommended as "cure-alls" for crooked hole drilling.

There does seem to be a definite relation between weight on bits and speed that will produce the best results in drilling and the contractor's contention is that if the producing companies write into the drilling contracts clauses that remove from the driller's control the right to vary the weight to be applied on bits they will automatically remove from the contractor all means of control, for variable drilling speeds are very limited.

The engineers did agree that this condition should be left for the driller to decide as the drilling requirements at the well varied and it also seemed to be the consensus of opinion of the meeting that the weight on the bit must be judged largely by the driller on the derrick floor from his own knowledge of the formations being drilled, for there are numerous variables that enter into the weights as recorded by weight indicators that could not be definitely or accurately predetermined by the engineers or others away from the well in question.

It does seem to be very evident that all known methods of reducing deflection from the vertical in drilling rotary holes must be used at one time or another, and it is admitted that as the life of any field increases knowledge gained in drilling the first wells is very beneficial in the work of drilling the later wells in the area, and likewise the technique of the drilling crew is improved greatly by experience in any given area and by the laws of survival of the fittest, the careless and incompetent workers are weeded out and only the better type of men remain after the rush to drill in the first wells in the pool is over.

As there are two variables that can be predetermined within certain ranges and will govern the rate of drilling speed and it is known that certain speeds are best suited for certain types of formations, the engineer's problems will be greatly reduced by the application of these principles and it is hoped that some methods of a semiautomatic nature will soon be devised that will greatly improve upon the present automatic devices that have only proven partially successful in their application.

Congenial Spirit Notable

In closing it is particularly gratifying to be able to note the congenial spirit that pervaded both of these sessions as well as the various entertainments provided for the visitors.

On Wednesday afternoon the crowd was about evenly divided between golf games at Oakhurst County Club and a trip to the Municipal air port and visit to the Spartan Aircraft Co. factory with rides over the city in planes procured for this purpose by the entertainment committee headed by C. A. (Chuck) Watson of the Carter organization.

The friendly discussions of the field problems by men from all branches of the industry, together with the mingling of these men at social functions provided for their entertainment, is bound to have its effect in moulding the individuals into a much more closely working unit than has been heretofore possible in the petroleum industry, and much good must come of this practice which will be continued until such time as all major problems have been treated in a like manner.

GAS LIFT PRACTICE IN THE SEMINOLE FIELD

(Continued from Page 49)

mation of the answers compiled as follows:

Advantages—Lower installation charges, lower operation expenses especially on labor, greater flexibility in operations, permits centralized supervision, greater volumetric efficiency per horsepower operated, more stable for gasoline investment, size of plants permits large units, less number of standby units, shut down of a unit for repairs has smaller effect on header volumes and pressure, hence more uniform oil production.

Disadvantages—Larger investment in both suction and discharge line, higher trap pressures to force gas to plant, higher discharge pressures account of pressure drop in lines, leakage losses greater in longer lines, more freezing in lines during cold weather. Small plants on separate leases allow better communication between the plant and wells, also permits more direct gas lift operations. The hazards of fire and explosion would only affect the compressed gas supply on a single lease while in a centrally located plant it is possible that several leases might be shut down at one time.

Safety Methods and Appliances

Safety methods and appliances were next discussed in much detail and the dangers of using air and gas mixtures in gas lift operations were stated to come from the possibility of the lubricating oil used in the compressor cylinders vaporizing and forming an explosive mixture. Also, a small amount of gas when mixed with air under pressure is explosive and care must be taken to see that only air goes to the intake of the compressor.

The greatest danger, however, seems to be in the fire hazard which results from the use of gas, although it is possible by pulling a vacuum on the intake system to secure a large percentage of air (through leaks, etc.) with the gas and thus form an explosive mixture.

Fifteen answers received to the question, "Which is the more dangerous, air or gas?" indicates that air is considered the more dangerous, perhaps largely because of the hazards outlined above.

It was developed that fittings for the high pressure lines were tested for from 1,500 pounds to 4,000 pounds per square inch pressures to reduce the possibilties of "blow-ups."

Any gas-air mixtures in excess of 25 per cent gas and 75 per cent air is dangerous at 300 pounds pressure, but 11 per cent gas and 89 per cent air probably approximates the correct ratio for explosive mixtures.

Surface lines and equipment came in for a large part of the discussion and the field men seemed about evenly divided on the question of discharging the entire capacity of the compressor plant into a common header and distributing a certain portion of the gas to the wells or recommending allocating a certain number of machines to a certain well.

The advantage of a common header is that the total output volume of the compressors is much more effective and thus a more economical utilization. The system is more flexible in allocating the required volume to each well and shutting a machine down for repairs has less effect upon the wells as a whole than it would if connected to one well.

The disadvantage of a common header is that the pressure on the system must be equivalent to or greater than the highest working pressure well. This requires all compressors to discharge at this highest input pressure which lowers volumetric efficiencies in comparison with lower discharge pressures. Another disadvantage is keeping control equipment in operating condition.

It is suggested that a two-header system has its advantages and the high pressure breakout header can be used as an auxiliary flowing header in case there are only one or two wells which operate at a higher working pressure than the remainder. Another suggestion is to use a two-header system for large compressors and divide machines for small compressors.

Volume Control and Manual Control

The opinions were about evenly divided as to the preference for volume controls and manual controls for distributing the gas to the wells from a common header. Volume controls are more positive with changing pressures, and give better and more economical regulations of gas volumes but require considerable attention, due mainly to corrosion of working parts, which ofttimes make them impractical.

There was about an even division of opinion regarding the advantage of 2-inch and 3-inch lines for conducting high pressure gas from the plant to the wells with about 1,000 feet maximum length of line, for it has been found that the pressure drop through the 2-inch lines is not excessive if the volume of gas passing is under 750,000 cubic feet per day. Larger lines give less trouble from freezing in cold weather.

To prevent this freezing it is recommended that scrubbers be installed on the discharge from the compressors at the plant; that drips and heaters be used along the lines, and the lines be buried deep enough to be below frost penetration. It has also been found that injection of small quantities of alcohol several times daily into the high pressure lines is a good preventive measure.

Location of Separator

It is recommended that the oil and gas separator should be located near the well and should be elevated and this method of handling the production from the well has resulted in increasing the amount of oil produced in one case from 5,600 to 7,200 bbls. per day and in other instances cited the increase in production had been equally marked. It is recommended that the 6⅝-inch casing size be continued from the well to the trap and the bends in this pipe should be as gradual as possible, never greater than 45 degrees and should have convex angles.

It seems to be a well established practice in the Seminole Field to use gas as the lifting medium as it does not cause as much corrosion trouble when sulphur is present in the gas coming from the sand and gas also increases the efficiency of the compressor operations.

Gas-Oil Ratio

The gas-oil ratio for natural flowing wells in each of the pools in the greater Seminole area are shown in the tabulation given below.

	Minimum	Maximum
Searight	300	3,700
Earlsboro	400	3,300
Seminole	200	2,700
Seminole	600	5,000
Bowlegs	300	2,500
Little River	300	2,700
Little River	500	1,200
Mission	200	2,200
Maud	1,000	3,800
St. Louis	100	2,000
Average	390	2,910

	Min.	Aver.	Max.
Greater Seminole	350	1,200	1,600
Greater Seminole	250	800	2,000
Greater Seminole	250	800	2,000
Greater Seminole	350	600	2,000
Average	300	850	1,900

In the majority of cases cited it is found that the gas-oil ratio increases during the natural flowing life of a well, although there were some cases of the gas-oil ratio decreasing and in the Maud area (Misener-Hunton) it has been noted that by the application of back pressure the gas-oil ratio has decreased from 2,600 to 1,250 cubic feet per barrel of oil lifted without decreasing the oil production.

The average and maximum pressures required to "kick-off" wells in each of the greater Seminole pools is well shown in the following table:

Pool—	Average lb. per sq. in.	Maximum lb. per sq. in.
Seminole	600	1,200
Earlsboro	500	1,000
Bowlegs	500	1,000
Little River	750	1,200
Searight	400	1,000
Mission	500	1,250
St. Louis	750	1,100

Investigation seems to indicate that in a majority of cases the gravity of the oil will decrease during the gas lift life of a well, and the rate of decrease in gravity is dependent largely upon the gas-oil ratio during the gas lift period of production.

Intermittent Flow Principles

Intermittent flow principles are to admit and cut off input gas to wells at short intervals of time. During the nonflowing period, the back pressure on the sand decreases materially which allows the oil to enter the well at an increased rate and the hole acts as a reservoir. After a short interval of time, determined by trial, a heavy "shot" of gas is injected into the well and the accumulated oil in the hole is lifted to the surface with less slippage of gas than if the well were flowing steadily. The sudden "kick-off" forces most of the oil up the flow pipe and allows a minimum amount to be driven back into the formation.

The minimum, average and maximum barrels of oil produced per day by the intermittent flow practice is shown in this table, for Seminole area.

Minimum	Bbls. per day average	Maximum
2½	...	225
10	400	1,400
10	300	900
30	200	700
45	300	1,000
75	200	650
80	200	600
120	...	900
130	350	1,200
150	500	2,000
Average 65	306	958

Application Through Tubing

In discussing the practice of applying the gas lift through tubing the answers to the question relating to daily production rate that would be reached by the well during its life before the tubing is run as flow pipe are tabulated in this table:

Size tubing	Daily Oil Production Bbls.					Aver.
2"	100	100	100	100	...	100
2½"	200	150	250	150	200	190
3"	300	350	400	350	500	380
4"	400	800	1,000	800	1,000	800

The men answering questions about the practice of producing wells in Seminole area by swabbing and pumping versus the gas lift method, seem to favor this latter means of production and claim that the increase in production by using it varies from 20 to 400 per cent in some cases, to as high as an average of 500 per cent and maximum of 800 per cent in others, and yet others state that they have found wells where it is possible to swab more oil than could be produced by gas lift but sand conditions seem to largely effect results in the application of either method. There are cases where it has been noted that production on a gas lift well will decrease if an offset well is taken off gas lift and put to swabbing or pumping yet in other instances other conditions seem to enter into the problem and these changes will have little or no effect on production.

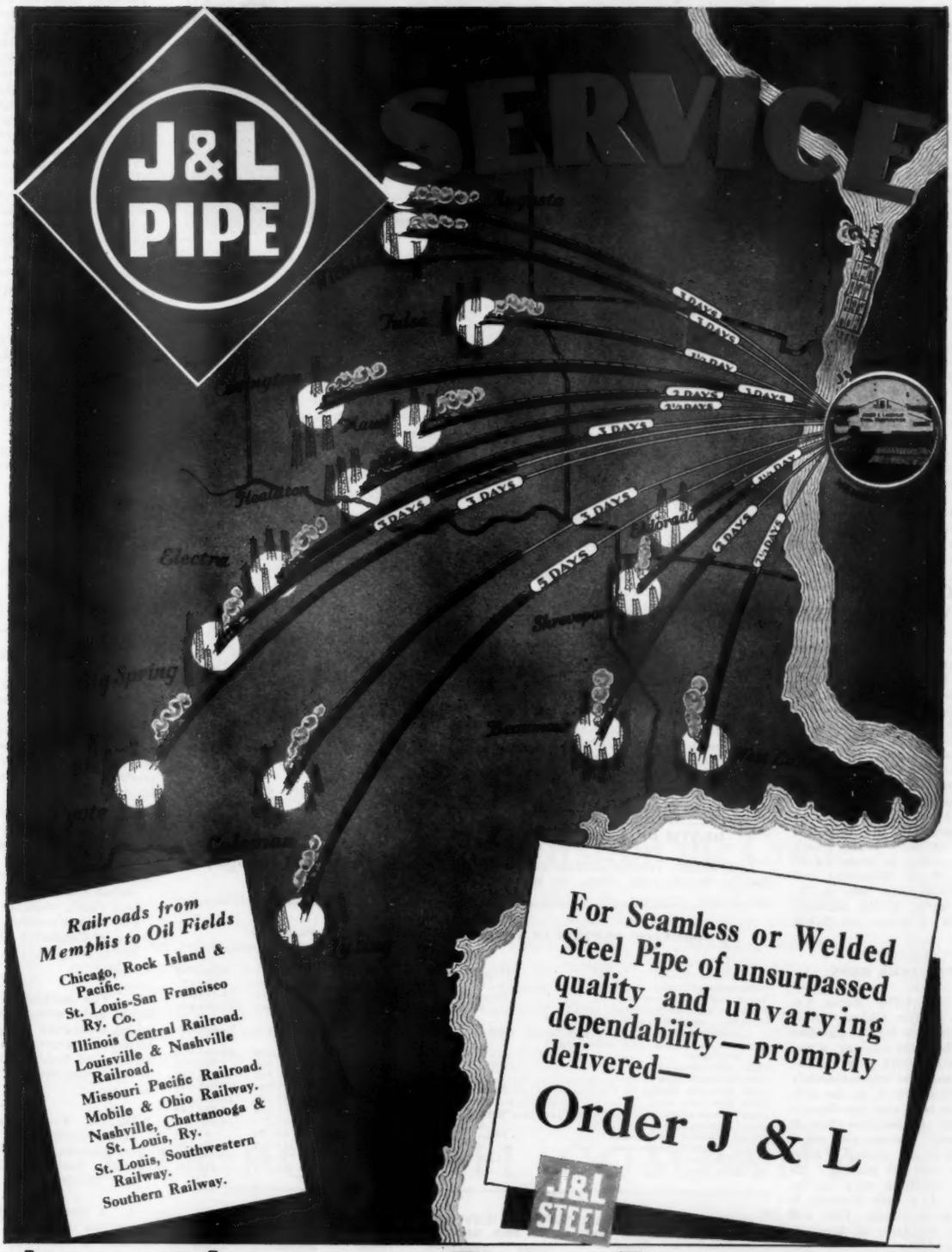
Lifting Costs

Representative Seminole properties show the average and maximum lifting costs to produce a barrel of oil by gas lift, and by pumping as follows:

Gas lift—cents per barrel—average: 5-10; 7; 7; 8; 8-12; 10; 10-15; 19; average 10.1.

Gas lift—cents per barrel—maximum: 50 (3); 70; 80; average, 60.

On pump—cents per barrel—average: 18; 19; 25; 25-35; 25-60; average, 27.4. while the average cost per day to swab a well in the same area is found to be



Railroads from Memphis to Oil Fields

Chicago, Rock Island & Pacific.
St. Louis-San Francisco Ry. Co.
Illinois Central Railroad.
Louisville & Nashville Railroad.
Missouri Pacific Railroad.
Mobile & Ohio Railway.
Nashville, Chattanooga & St. Louis, Ry.
St. Louis, Southwestern Railway.
Southern Railway.

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PITTSBURGH PENNSYLVANIA

$84, and varies from as low as $50 to as high as $100 for individual wells.

The last question asked is given in full with its answer and this study of the problem with its discussion will undoubtedly lead to a much better understanding of the application of gas lift principles to future producing areas and will mean a real economy to the industry.

Leaving out all phases of economics, do you believe that gas lift has increased the ultimate yield of oil from the sands compared to what the ultimate yield would have been if the wells had been swabbed and later pumped? Give reasons.

No (1); swabbing and pumping would have produced a greater ultimate quantity because the water encroachment would have been slower and cleaned the formation of more oil (1).

Yes (1); yes (3), because wells on gas lift have almost invariably been produced with lower formational gas-oil ratios; resulted in high daily production early in the life of the wells when rock pressure was high (1); because gas lift conserves the rock pressure in the producing horizon (1); there is a definite back pressure with gas lift (1); believe the back pressure universally held has retarded water encroachment and increased ultimate yield (1); decline curves have been flattened and production sustained (1); production on gas lift is more rapid and a greater use is made of both the formational gas and the gas in solutions, while on the other hand swabbing and pumping do not do this (1).

This paper's presentation and discussion occupied the whole of the afternoon session on Tuesday and the discussion is to be compiled and edited and later presented in such form as to be available to members of the American Petroleum Institute and others interested.

COLLEGE PROFESSORS CONFER WITH OIL MEN

A meeting of the faculty of Penn State School of Mines with oil producers and refiners was held in Bradford Tuesday, May 28, to discuss the problems of oil. The State of Pennsylvania recently appropriated $50,000 to State College to be used in the work being done in the college along petroleum industrial lines. The meeting in Bradford was for the purpose of enlightening the oil men on the college program and to give the college faculty a line on the collective ideas of men actually engaged in the industry. The Pennsylvania advisory board which will act with the college is made up of R. J. Alexander, W. J. Brundred and S. Y. Ramage of Oil City, and A. E. Booth, Frank Brewster, R. M. Haskell, Cornell N. Pfohl, W. T. Piper and Ralph Zook of Bradford.

CHICAGO P.O. ASKS BIDS

CHICAGO, June 1.—The Motor Vehicle department of the Chicago post office has asked for bids for its gasoline requirements for the third quarter of the current year beginning with July 1. The quality required will be approximately 220,000 gallons. Delivery is to the seller's storage in this city and the department will distribute the gasoline through its own tank truck. Prices are asked either on the basis of the Group 3 market or a flat price over the quarter. An extra charge for handling may be included in the bid. If a cash discount is allowed it should be so stated. Bids will be received up to the close of business on May 31.

YATES-KEMPER LINE

FORT WORTH, Tex., June 3.—The Humble Pipe Line Co. is filling in 5 miles of gap in its second 8-inch line from the Yates Pool, Pecos County, to its pumping station at Kemper, in Reagan County. When completed this will give two 8-inch lines from Yates to Kemper, with a total capacity of 35,000 bbls. daily. At Kemper the crude from Yates is pumped into the main line running to Corpus Christi on the Gulf Coast.

AERIAL GUIDE ON BAYONNE PLANT

Aerial guide painted on top of several of the buildings at the Bayonne, N. J., refinery of the Tide Water Oil Co., the first aerial marker on the part of any of the refineries in that area.

LOCATION OF SEEPAGE DITCHES NOT LIMITED

AUSTIN, Tex., June 1.—The Marland Oil Co. has been authorized by the Railroad Commission to construct a ditch within 50 feet of the Grayburg Oil Co.'s ditch to trap fugitive or seepage oil in Pecos County.

Already 1,000,000 bbls. of oil have escaped recovery, down the stream, it was estimated by C. V. Terrell, commission member, and R. D. Parker, chief of the oil and gas division. The Grayburg Oil Co. has recaptured nearly 200,000 bbls., the Marland 82,000 bbls. and the Mid-Kansas 16,000 bbls., according to a report of R. W. Richmond, Yates Field umpire.

At a recent hearing in Austin there was opposition to the Marland company's application on the ground that construction of the ditch within 50 feet of the Grayburg ditch would be less than 300 feet apart and less than 150 feet from the property line. The Railroad Commission holds that Rule 37 does not apply to ditches. The seepage oil belongs to those that trap it, said R. D. Parker, chief oil and gas supervisor.

DEATH OF J. J. EVANS

J. J. Evans, veteran natural gas man, died in Steubenville, Ohio, on May 22. Mr. Evans was affiliated with the Standard Oil Co. of New Jersey for 39 years. In 1926 he retired from the position of general superintendent of the Hope Natural Gas Co. At that time his headquarters were in Clarksburg, W. Va.

He was also general superintendent of the Reserve, Connecting, and River Gas companies. He was a past president of the West Virginia Natural Gas Association.

Mr. Evans was married 41 years ago to Anna Jeannette Luse of Oil City, who survives with the following children: J. F. Evans of Burgettstown, Pa., Mrs. John Anderson and Mrs. Charles H. McFarland.

These brothers and sisters survive: J. P. Evans of Emlenton, Pa., F. P. Evans of Oil City, Pa., P. T. Evans of Cleveland, Ohio, Mrs. Bert Shoup of Emlenton, Pa., Mrs. T. S. Filson of East Brady, Pa., Mrs. Catherine Dempsey of Erie.

SALE OF NEW MEXICO LEASES

SANTA FE, N. Mex., June 1.—The Commissioner of Public Lands has announced a sale of oil and gas leases at the capitol on June 10. Fifty-eight tracts, practically all located in the eastern part of the State, and some in Lea and Eddy Counties will be offered.

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

		—Month of April—		—Months ended April—	
		1928	1929	1928	1929
Petroleum—Crude	Bbls.	1,302,563	1,723,543	5,300,324	6,945,452
Petroleum—Crude	$	1,723,853	2,161,662	7,062,657	8,995,190
Total refined petroleum	Bbls.	10,950,661	9,623,212	41,142,745	39,208,975
Total refined petroleum	$	35,449,559	38,673,120	138,420,089	157,262,388
Gasoline, naphtha and other light products	Bbls.	4,040,976	4,517,595	14,923,739	17,430,386
Gasoline, naphtha and other light products	$	16,093,875	20,502,072	60,832,526	80,488,642
Oils, illuminating	Bbls.	1,903,358	1,619,782	7,573,364	6,969,756
Oils, illuminating	$	7,408,303	7,241,264	31,120,721	29,365,352
Oils, gas and fuel	Bbls.	3,951,274	2,701,655	14,983,690	10,995,097
Oils, gas and fuel	$	4,117,251	2,818,101	16,087,885	11,887,290
Oils, lubricating	Bbls.	1,041,911	771,451	3,613,354	3,753,148
Oils, lubricating	$	7,701,104	7,904,300	29,795,273	34,656,916
Other refined petroleum	Bbls.	13,142	12,729	48,598	60,588
Other refined petroleum	$	129,026	207,383	583,684	864,188
Paraffin wax	Lbs.	34,188,522	22,659,688	152,342,565	99,131,420
Paraffin wax	$	1,288,189	1,076,691	5,744,678	5,080,786

SUMMARY OF STATEMENTS MADE MAY 10, 1929, RELATING TO BUSINESS OF VARIOUS PIPE LINES FOR MONTH ENDING APRIL 30, 1929

	Gross stocks	Runs from wells	Other receipts	Regular deliveries	Other deliveries
Nat. Transit	716,361.68	220,177.96	835,201.39	459,813.50	614,908.56
S. W. Pa. P. L.	423,480.13	96,471.45	915,489.77	363,716.29	659,076.27
Eureka P. L.	1,305,585.15	361,294.32	419,248.92	245,843.98	442,276.97
Buckeye P. L. (Macksburg)	517,342.15	335,779.62	99,395.95	191,498.74	224,936.17
Buckeye P. L. (Lima, etc.)	1,977,236.44	103,296.03	2,052,570.96	1,323,167.62	873,848.63
Buckeye P. L. (Cleveland)	36,739.70	12,265.09	146,092.63	1,947.40	174,661.48
Indiana P. L.	541,456.22	5,130.73	2,332,553.28	1,380,184.34	937,099.19
Cumberland P. L.	589,250.22	203,144.51	110.70	184,506.68	.....
Southern P. L.	472,810.29	.....	179,424.79	71,454.97	172,351.17
New York Transit	319,023.52	31,202.58	190,065.21	186,779.49	.....
Northern P. L.	384,395.22	.....	403,289.70	179,598.23	220,017.35
Tuscarora Oil	255,038.02	.....	.....	.....	620,083.74
Total April 30	7,538,718.74	1,368,762.29	7,573,443.30	4,591,504.24	4,939,260.53
Total March 31	7,537,006.34	1,318,480.25	7,174,047.47	4,627,247.06	4,592,827.06
Difference	1,712.40	50,282.04	399,395.83	35,842.82	346,433.47

Recent Patents

ALTERNATE OIL FLOW

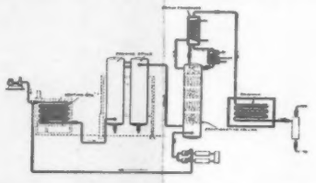
1,708,782. Pressure Cracking Treatment of Liquid Hydrocarbons. Evelyn Stewart Lansdowne Beale, George Howard Coxon, and Albert Ernest Dunstan, London, England, assignors to Anglo-Persian Oil Co., Ltd., London, England. Filed May 9, 1928, Serial No. 276,336, and in Great Britain March 15, 1927. Two Claims. (Cl. 196—47.)

1. A process for the cracking of hydrocarbon liquids, comprising imparting to the liquid to be cracked a predominant feed flow in a stream through an elongated passage of restricted cross section, imparting a cracking temperature to the stream of liquid in its passage, and imposing upon the liquid in its passage impulses alternating in opposite directions to effect substantial alternately reciprocating movement of the liquid in addition to its predominant feed flow through the restricted passage.

COOL AND RETURN PORTION OF OVERHEAD STREAM

1,709,304. Treating Hydrocarbon Oils. Guy B. Bogart, Lockport, Ill., assignor, by mesne assignments, to The Texas Company, New York, N. Y., a corporation of Delaware. Filed February 17, 1927. Serial No. 168,941. 8 Claims. (Cl. 196—140.)

1. In the fractionation of hydrocarbon oils, the process that comprises sub-



jecting hydrocarbon vapors to fractionation in a fractionating column, taking off vapors from the column and conducting them to a final condenser for condensation, while subjecting the vapors on their way to said final condenser to a cooling action to condense a portion thereof, cooling the condensate thus formed and introducing the cooled condensate into the fractionating column.

TREAT GASOLINE VAPORS WITH LIME AND IRON OXIDE

1,712,619. Process of Refining Hydrocarbon Oils. Harry Karl Ihrig, Berkeley, Calif., assignor to Associated Oil Co., San Francisco, Calif., a corporation of California. Filed June 15, 1927. Serial No. 199,117. 2 Claims. (Cl. 196—28.)

1. The method of treating normally liquid hydrocarbons in the gaseous phase which comprises bringing the vapor into intimate contact with a properly heated mixture of hydrated lime and iron oxide in approximately the proportion of one to three.

1,712,789. Process for the Conversion of Hydrocarbon Oils. Joseph F. Donnelly, Lemont, Ill. Filed November 21, 1924. Serial No. 751,250. 13 Claims. (Cl. 196-58.)

1. A process for the conversion of hydrocarbon oils, which consists in heating a mass of relatively heavy hydrocarbon oil to a cracking temperature under a pressure sufficient to prevent vaporization thereof, discharging said heated oil before the cracking reaction reaches the condition where free carbon would be formed therein into a zone of lower pressure, and checking the cracking reaction in said zone of lower pressure before it reaches the condition where free carbon would be formed therein, in such a degree as to prevent the formation of free carbon in said zone by the simultaneous regulated introduction of a cooler hydrocarbon oil into said zone.

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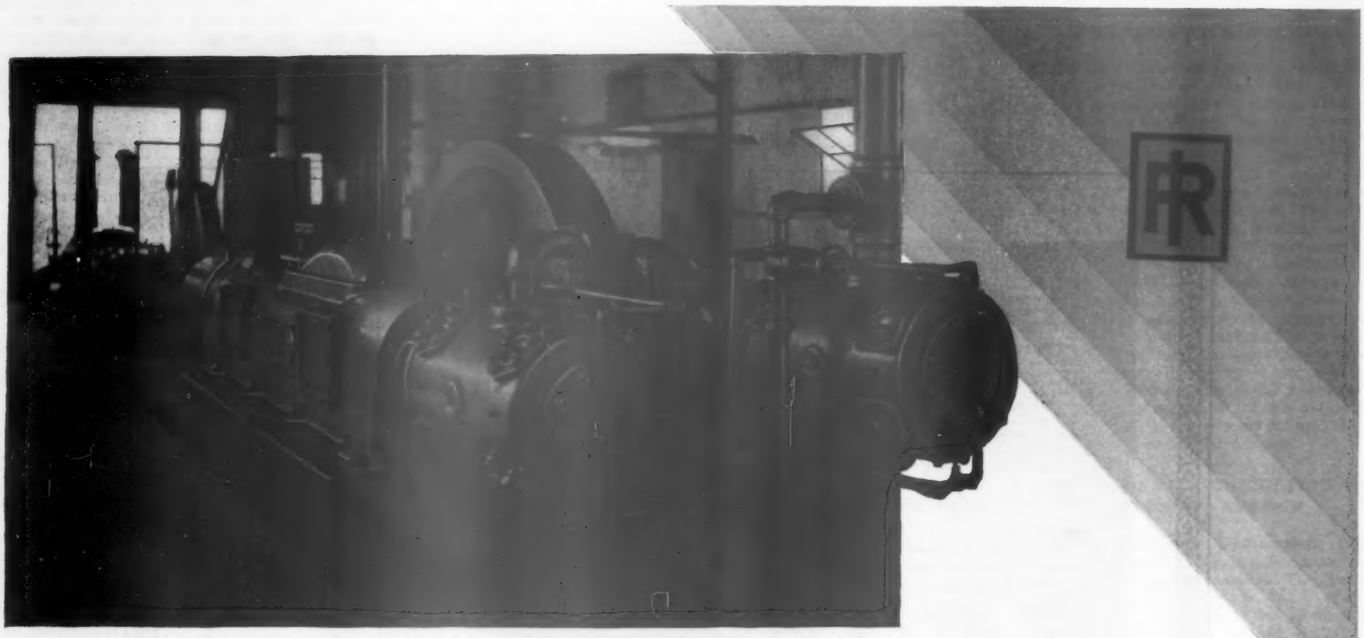
Miami, Fla.
Pensacola, Fla.
Tulsa, Okla.
Beaumont, Tex.



A Type XG compressor which has been in almost continuous operation since its installation at an Indiana oil property in September, 1928.

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The ECONOMY of Gas Engine Drive

These new oil field compressors—the 180-hp. Type XG, and the 90-hp. Type XOG—combine in direct-connected units the high efficiencies of Ingersoll-Rand compressing cylinders and the economies of 4-cycle gas engine power.

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Foundation and floor space requirements are small.

Power-end parts are completely interchangeable.

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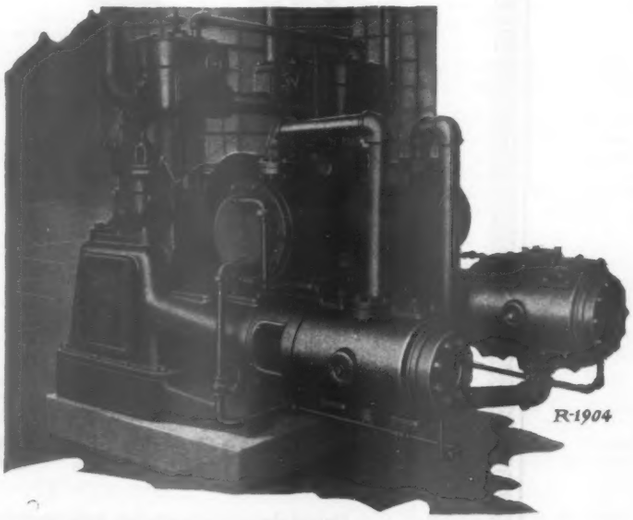

Type XOG compressor, with XOB compressing cylinders.

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954-C

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Magnolia Petroleum Co.'s No. 7 M. P. Co. fee No. 244, 890 feet north and 990 feet east of the SW cor. of the SE of Section 91, Block 4, I.&G.N. Survey. Stubblefield and others' No. 1 C. R. Garner, 330 feet north and west of the SE cor. of the SE of Section 104, Block 4, I.&G.N. Survey.

Gray County

Danciger Oil & Refining Co.'s No. 2 M. A. Shaw (Shell), 330 feet north and west of the southeast corner of the east 80 acres of the south 139.5 acres of the west 279 acres of Section 5, Block 1, A.C.H.&B. Survey. The Texas Company's No. 4 J. E. Williams, 330 feet south and west of the NE cor. of the NE of the NW of Section 6, Block 1, A.C.H.&B. Survey. Shell Petroleum Corp.'s No. 3 R. S. McConnell, 330 feet north and west of the SE cor. of the E half of the SW of Section 174, Block 3, I.&G.N. Survey. The Texas Company's No. 2 Purviance and others, 330 feet south and west of the northeast corner of the east 155 acres of the west 235 acres of Section 61, Block B-2, H.& G.N. Survey. Wilcox-Pampa Oil Co.'s No. 7 Combs & Worley, 330 feet north and east of the SW cor. of the SE of Section 60, Block 3, I.&G.N. Survey. Same company's No. 8 Combs & Worley, 330 feet north and west of the SE cor. of the SW of Section 60, Block 3, I.& G.N. Survey.

Hutchinson County

McMan Oil & Gas Co.'s No. 2 J. M. Sanford, 315 feet north and 300 feet east of the southwest corner of the north 274 acres of Section 83, Block 46, H.&T.C. Survey.

Moore County

Amarillo Oil Co.'s No. 1 J. J. Perkins and others-A, 330 feet south and east of the NW cor. of the NE of Section 76, Block 3, G.&M. Survey. McMan Oil & Gas Co.'s No. 3 J. T. Sneed, Jr., 2,920 feet south and 375 feet west of the northwest corner of the J. W. Proctor Survey and located in the M. Robinson Survey. Phillips Petroleum Co.'s No. 1 J. C. Wilson, 330 feet south and east of the NW cor. of the S half of the SE of Section 157, Block 3-T, T.&N.O. Survey. Skelly Oil Co.'s No. 8 Armstrong & Byrd, 2,920 feet south and 375 feet east of the northwest corner of the J. W. Proctor Survey. Skelly Oil Co.'s No. 9 Armstrong & Byrd, 2,920 feet south and 990 feet east of the northwest corner of the J. W. Proctor Survey.

Wheeler County

A. R. Anderson's No. 1 J. W. Mengers, at the C of the SW of the SE of Section 71, Block 17, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Archer Drilling Co.'s No. 3 A. D. Thompson, 150 feet north and 450 feet east of the southwest corner of Lot 12, Section 20, A.T.N.C.L. Survey. Brown Farm Oil Co.'s No. 4 E. T. Brown, 150 feet north and 2,400 feet east of the southwest corner of the E. T. Brown 320-acre tract out of Section 2, S.P.R.R. Survey, A-921. L. T. Burns' No. 1 L. F. Wilson-L, 1,320 feet north and 2,160 feet east of the SW cor., Section 94, A.T.N.C.L. Survey. Gwynn-Boyd Drilling Co. and others' No. 2 A. D. Thompson, 150 feet north and west of the southeast corner of Lot 11, Section 20, A.T.N. C.L. Survey. L. P. Hammond's No. 1 Parrish Brothers, 150 feet north and west of the SE corner of Lot 1, Section 98, A.T.N.C.L. Survey. George L. Pace's No. 1 Henry Ford, 225 feet south and 150 feet east of the northwest corner of the W. Bryan Survey No. 4, A-35. George L. Pace's No. 2 Henry Ford, 5,-129 feet south and 570 feet west of the northeast corner of the W. Bryan Survey No. 4, A-35. George L. Pace's No. 1 H. C. Riggs, 150 feet south and west of the NE cor. of the W half of Section 2, S.P.R.R. Survey, A-1,255. Shappell Oil Co.'s No. 47 J. L. Jackson, 530 feet north and 450 feet west of the SE cor. of Section 5, Denton County School Land, League 3, A-117. Estracado Oil Co.'s No. 1 W. R. Ball, Jr., 500 feet north and east of the SW cor. of the NE of Section 10, Andrews Nunley Survey, A-320. A. W. Johnston's No. 2 C. R., C. K. and E. G. Garvey-C, 150 feet south and 2,200 feet west of the NE cor. of Section 1,859, T.E.&L. Survey. May-Camp Drilling Co.'s No. 1 H. O. Prideaux, 150 feet north and east of the southwest corner of Lot 7, A. McMullen Survey, A-286.

Eastland County

McLester and others' No. 2 W. M. Allen estate, 3,900 feet north and 4,000 feet east of the most westerly southwest corner of the John Foster Survey. McLester and others' No. 1 Mrs. M. E. Lee, 900 feet north and 520 feet east of the southwest corner of Lot 1, East Subdivision, T. A. Howell Survey. J. L. Arnold's No. 1 Mrs. L. MacMullin, 330 feet north and west of the SE cor. of the NE of the SW of Section 56, B.B.B.&C. Survey. W. E. Davis and others' No. 1 Mrs. W. D. Craig and others, 150 feet south and 1,300 feet west of the northeast corner of the Mrs. W. D. Craig and others 40-acre tract out of Section 30, Block 2, H.&T.C. Survey. A. R. Forster and others' No. 2 J. E. Spencer, 150 feet north and west of the SE cor. of the NW of the NE of Section 29, Block 2, H.&T.C. Survey.

Ed Kaough's No. 1 J. W. Balderree, 355 feet north and 472 feet west of the SE cor. of the NW of Section 62, Block 4, H.&T.C. Survey. Kirk & Whitesides' No. 2 J. S. Turner, 150 feet north and west of the SE cor. of the P. S. Turner 40-acre tract out of Section 30, Block 2, H.&T.C. Survey. Root & Fehl's No. 1 G. H. N. Balderree, 300 feet north and east of the SW cor. of the SE of Section 63, Block 4, H.&T.C. Survey.

Fisher County

Magnolia Petroleum Co.'s No. 1 A. Lee, 2,310 feet south and 2,328 feet east of the northwest corner of the A. Lee 1,-036-acre tract out of the J. Rodriguez Survey No. 357.

Howard County

McGinley & Seigler's No. 1 J. W. Barnett, 300 feet south and east of the NW cor. of Section 92, Block 29, W.&N.W. R.R.

Jack County

Panhandle Refining Co.'s No. 1 J. M. and W. E. Box, 300 feet south and 200 feet west of the NE cor. of the west 80 acres of the J. M. and W. E. Box 160-acre tract out of the Isaac Hughson Survey A-256. Panhandle Refining Co.'s No. 2 J. M. and W. E. Box, 240 feet south and 330 feet east of the NW cor. of the west 80 acres of the J. M. and W. E. Box 160-acre tract out of the Isaac Hughson Survey A-256.

Mitchell County

The California Co.'s No. 1 W. F. Foster, Lease 1, 733 feet north and 1,580 feet east of the SW cor. of Section 6, Block 29, Township 1s, T.&P.

Montague County

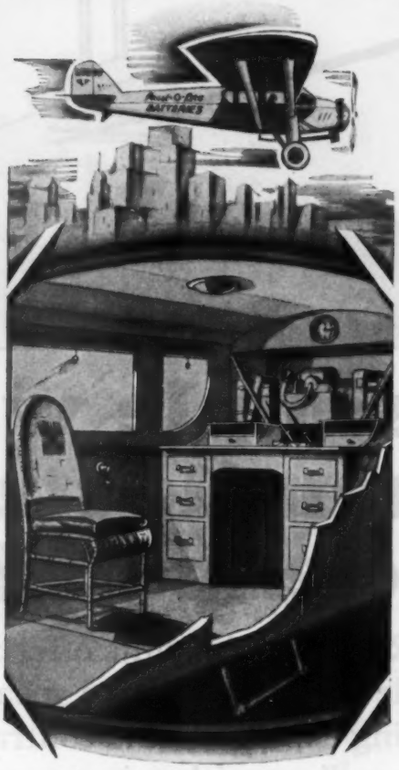
Bridwell Oil Co.'s No. 1 Mrs. E. C. Edmondson, 150 feet north and west of the SE cor. of the north 15 acres of the Mrs. E. C. Edmondson 96.5-acre tract out of the T. R. Edmondson Survey A-222.

Palo Pinto County

Brazos River Gas Co.'s No. 3 J. H. Wester, 1,950 feet southeast of the NW line and 450 feet southwest of the NE line of the John T. Smith Survey A-410.

Shackelford County

Cranfill & Reynolds' No. 1 R. J. Moberly-B, 870 feet north and 1,200 feet west of the SE cor. of Section 48, Block 11, T.&P. Dull & Earl's No. 8 J. B. Matthews, 150 feet south and west of the NE cor. of the NE of the SE of Section 32, Block 10, E.T.R.R. Gilman & McMurray's No. 2 J. B. Matthews, 494 feet south and 150 feet east of the middle of the east line of Section 29, Block 10, E.T.R.R., and located in Section 2. A. J. Hughes and others' No. 1 J. K. Elliott, 150 feet south and 495 feet west of the



The Vision of PREST-O-LITE

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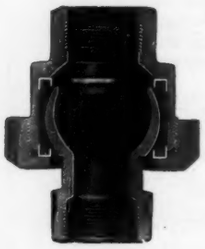

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NE cor. of the NW of the NE of Section 9, Lunatic Asylum Land. A. J. Hughes and others' No. 1 Reynolds Cattle Co., 150 feet north and east of the SW cor. of the SE of Section 101, Block 10, E.T.R.R. Humble Oil & Refining Co.'s No. 5 G. R. Davis-B, 3,260 feet south and 3,672 feet east of the NW cor. of Section 219, Block 10, E.T.R.R. Tannehill and others' No. 3 L. H. Hill, 850 feet north and east of the SW cor. of the SE of Section 2, Lunatic Asylum Land. Texas Consolidated Oil Co.'s No. 2 J. F. Dyer, 150 feet north and west of the SE cor. of the N half of the SW of Section 60, Block 11, T.&P.

Stephens County

Ashe Syndicate's No. 3 Mary J. Hart and others, 300 feet south and west of the NE cor. of the SE of Section 22, Block 4, T.&P.

Wichita County

G. H. Howell's No. 2 Foster & Allen, 3,532 feet north and 450 feet east of the SW cor. of Section 1, H.T&B., A-129.

Wilbarger County

C. P. Burton and others' No. 2 W. T. Waggoner-I, 2,130 feet south and 2,491 feet east of the NW cor. of Section 40, M.E.P.&P., being 150 feet south and 450 feet west of the NE cor. of their 20-acre lease. C. H. Clark and others' No. 2 W. T. Waggoner, 660 feet south and 160 feet west of the NE cor. of the SW of the SW of Section 25, Block 4, H.&T.C. Consolidated Oil Co.'s No. 2 W. T. Waggoner-O, 490 feet north and 150 feet west of the SE cor. of the N half of the NW of Section 40, M.E.P.&P. Easter Oil Co.'s No. 5 W. T. Waggoner-A, 205 feet north and west of the SE cor. of the NE of the NE of Section 26, Block 4, H.&T.C. Empire Gas & Fuel Co.'s No. 5 W. T. Waggoner-A, 424 feet north and 205 feet west of the SE cor. of the NW of Section 32, Blk. 4, H.&T.C. Empire Gas & Fuel Co.'s No. 11 W. T. Waggoner-B, 660 feet north and 205 feet west of the SE cor. of the SW of Section 32, Block 4, H.&T.C. Same company's No. 12 W. T. Waggoner-B, 685 feet south and 1,074 feet west of the NE cor. of the SW of Section 32, Block 4, H.&T.C. Same company's No. 6 W. T. Waggoner-C, 1,025 feet south and 205 feet east of the NW cor. of Section 32, Block 4, H.&T.C. Empire Gas & Fuel Co.'s No. 11 W. T. Waggoner-B, 660 feet north and 205 feet west of the SE cor. of the SW of Section 32, Block 4, H.&T.C. Same company's No. 12 W. T. Waggoner-B, 685 feet south and 1,074 feet west of the NE cor. of the SW of Section 32, Block 4, H.& T.C. Same company's No. 6 W. T. Waggoner-C, 1,025 feet south and 205 feet east of the NW cor. of Section 25, Block 4, H.&T.C. Fain-McGaha Oil Corp.'s No. 33 W. T. Waggoner-S, 660 feet north and 200 feet east of the SW cor. of the NW of the SE of Section 24, Block 4, H.& T.C. Golding-Cochran and others' No. 5 W. T. Waggoner-H, 750 feet north and 150 feet east of the SW cor. of the east 30 acres of the NE of the SE of Section 32, Block 4, H.&T.C. W. T. Knight's No. 1 W. T. Waggoner-A, 150 feet north and west of the SE cor. of the E half of the N half of the S half of the NW of Section 40, E.M.P.&P. W. T. Knight's No. 2 W. T. Waggoner-A, 150 feet south and west of the NE cor. of the E half of the N half of the S half of the NW of Section 40, M.E.P.&P. W. T. Knight's No. 1 W. T. Waggoner-B, 150 feet north and west of the SE cor. of the W half of the SE of Section 22, Block 4, H.&T.C. Lewis & Payne's No. 3 W. T. Waggoner, 205 feet south and 660 feet west of the NE cor. of the SE of the SW of Section 17, Block 4, H.&T.C. Melat Oil Co.'s No. 6 W. T. Waggoner-A, 2,432 feet north and 150 feet west of the SE cor. of Section 40, H.&T.C. Phillips Petroleum Co.'s No. 6 W. T. Waggoner-MM, 330 feet south and east of the NW cor. of the NW of the NE of Section 30, Block 4, H.&T.C. Same company's No. 22 W. T. Waggoner-NN, 943 feet south and 1,900 feet west of the NE cor. of the NE cor. of their 177-acre lease out of Section 42, Block 4, H.&T.C. Prairie Oil & Gas Co.'s No. 9 W. T. Waggoner-B, 330 feet north and west of the SE cor. of the SW of Section 43, Block 4, H.&T.C. Shaw Oil Co.'s No. 1 W. T. Waggoner-G, 1,830 feet south and 2,790 feet east of the NW of Section 40, M.E.P.&P.

Shaw Oil Co.'s No. 2 W. T. Waggoner-G, 1,470 feet south and 2,790 feet east of the NW cor., Section 40, M.E.P.&P. Survey. Shaw Oil Co.'s No. 3 W. T. Waggoner-G, 1,170 feet south and 2,790 feet east of the NW cor., Section 40, M.E.P.&P. Survey. Simpson-Fell Oil Co.'s No. 1 W. T. Waggoner-A, 450 feet south and 150 feet east of the NW cor. SW NW, Section 36, Block 2, H.&T.C. Survey. Staley-Wynne & Co.'s No. 4 W. T. Waggoner-B, 160 feet north and 190 feet east of the SW cor. NE SW, Section 25, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 2 W. T. Waggoner-J, 205 feet south and 660 feet west of the NE cor. NW NE, Section 25, Block 4, H.&T.C. Survey.

Winkler County

Southern Crude Oil Purchasing Co.'s No. 5 T. G. Hendrick T-67-2-D, 2,310 feet north and 990 feet east of the SW cor., Section 28, Block 26, School land.

Young County

L. G. Bradstreet Co.'s No. 2 T. L. Richardson, 1,674 feet south and 885 feet west of the northeast corner of the J. G. Maupin Survey A-1,483. O. Bratcher's No. 7 J. C. C. Edwards, 450 feet south and 150 feet west of the northeast corner of the J. C. C. Edwards 100-acre tract out of the S. Tynes Survey A-274. Continental Oil Co.'s No. 8 R. Campbell-B, 1,400 feet south and 1,000 feet east of the NW cor., Section 1,389, T.E.&L. Survey. Same company's No. 9 R. Campbell-B, 1,800 feet south and 600 feet east of the NW cor., Section 1,390, T.E.&L. Survey. L. H. Edmonson's No. 1 C. W. Johnson, 150 feet south and 750 feet west of the northeast corner of Lot 3, Edward W. Sergeant Survey A-253. Kimbrell & Lyles' No. 4 E. Dyer, 850 feet north and 150 feet east of the southwest corner of the W. W. Stroud Survey A-1,707. J. L. McMeans' No. 1 E. C. Keith, 150 feet south and east of the northwest corner of the west 40 acres of the south 80 acres of Section 268, T. E.&L. Survey. C. A. Pennell's No. 1 J. W. Cox, 200 feet north and 950 feet east of the SW cor. S half, Section 18, Young County School Land, A-1,284. E. R. Riggs and others' No. 29 J. B. McKinley, 450 feet south and 1,660 feet west of the NE cor., Section 1,489, T.E.&L. Survey. Robertson Drilling Co.'s No. 4 F. M. Gillmore, 150 feet south and 1,020 feet east of the NW cor., Section 14, Young County School Land, A-1,284. Wise & Jackson's No. 9 R. J. Calvin, 1,050 feet south and 1,425 feet east of the northwest corner of the R. J. Calvin 200-acre tract out of the A. Rohus Survey A-240. C. A. Flutey and others' No. 1 Wadley Brothers, 330 feet south and east of the southwest corner of the S. H. Graham Survey A-124, and located in the A. W. Coffman Survey No. 64, A-2,185. T. G. Shaw and others' No. 1 J. Kisinger-A, 1,750 feet northwest of the southeast line and 2,000 feet southwest of the northeast line of the J. Kisinger 600-acre tract out of the John Conner Survey A-57, being 150 feet north and east of the southwest corner of their 100-acre lease "A."

Corrections

In Archer County: Petroleum Producers Co. and Hines and others' No. 1 Moritz Phillips, 569 feet south and 130 feet east of the northwest corner of the north 25 acres of the west 50 acres of the M. Phillips 220-acre tract and located in the B.B.B.&C. No. 6, A-825. Same company's No. 2 Moritz Phillips, 141 feet south and 127 east of the northwest corner of the north 25 acres of the west 50 acres of the M. Phillips 220-acre tract and located in Section 6, B.B.B. &C. Survey, A-825.

In Wilbarger County: Gray Back Development Co.'s No. 1 W. T. Waggoner (Bateman), 150 feet north and east of the SW cor. N half SW, Section 15, Block 4, H.&T.C. Survey. Same company's No. 1 W. T. Waggoner (Smith), 150 feet north and east of SW cor. E half SE SE, Section 50, Block 2, H.&T. C. Survey.

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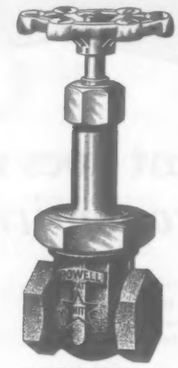

Fig. 375
"White Star" Gate Valve

Fig. 178
Hydraulic Gate Valve

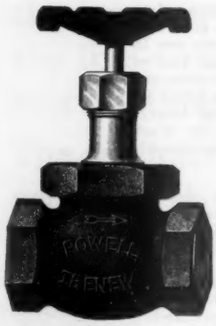

Fig. 190
"Irenew" Globe Valve

Powell Valves are particularly adapted for handling volatile and hazardous liquids and gases.

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POWELL VALVES

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ANALYSES IN OIL ABSORPTION OPERATION

(Continued from Page 54)

remembered as 12.00 (approx.) for carbon and 1.00 (approx.) for hydrogen.

Now if we wish the molecular weight of methane, we will add 1 times 12.00 to 4 times 1.00, and obtain 16.00. If we wish the molecular weight of ethane we will add 2 times 12.00 to 6 times 1.00, and obtain 30.00. So on up the line for butane, etc.

Molecular Weights

These numbers (16.00, 30.00, etc.) representing molecular weights are purely relative, but scientists have found that if these molecular weights are assigned definite values such as grams or pounds, a very convenient means is afforded for making chemical calculations. So they called this unit a "mol" instead of the lengthy: Molecular-weight-in-grams, or pounds, -of-etc. So we now have the fact that mol and molecular weight are synonymous. If the molecular weight of methane is 16.00, then one "mol" in the metric system, of methane, would weigh 16.00 grams, and in the English system 16.00 pounds.

It is also known that one mol of a substance expressed in grams will form 22.4 liters of gas at 0 degree Centigrade and 1 atmosphere; and one mol expressed in pounds will form 359.0 cubic feet of gas at 0 degree Centigrade and 1 atmosphere. Hence, it follows, that the "mol" idea is of great value to the engineer because it enables him to think of either gases, liquids, or solids in terms of the same unit—the mol.

For example:

The molecular weight of water is 18.00.

The weight of 1 gallon of water is 8.33 pounds.

From the above we know that one mol of water in the English system weighs 18.00 pounds. Then in 1 gallon of water there are $\frac{8.33}{18.00}$, or 0.463 mols of water.

If we have 708.0 cubic feet of methane gas at 0 degree Centigrade and 1 atmosphere, then we have $\frac{708.0}{359.0}$ equals 2.0 2.0 mols of methane.

Avogadro's Law

This law states that: "Equal volumes of every gas or vapor at the same temperature and pressure contain the same number of molecules." These molecules may vary in size and weight, but there are always the same number of them.

From this, then, an important tool is made possible for the use of the engineer or chemist. For, from this law 359.0 cubic feet of methane, ethane, propane, iso-butane, butane, etc., would equal one mol of each compound, respectively. It makes no difference whether a certain volume of gas is expressed in terms of known or unknown composition, the application still holds true.

For example, it has already been stated above that if we have 708.0 cubic feet of methane at 0 degree Centigrade and 1 atmosphere pressure, we would have $\frac{708.0}{359.0}$, or 2.0 mols of methane, because, by previous definition, one mol of a substance, expressed in pounds, will form 359.0 cubic feet of gas at 0 degree Centigrade and 1 atmosphere pressure.

Now suppose we have 1,000.0 cubic feet of a "gas" whose composition is entirely unknown, and we want to find the number of mols represented by this volume. We would do the same thing here, as under methane, namely: $\frac{1,000.0}{359.0}$, and we would obtain 2.78 mols at 0 degree Centigrade and 1 atmosphere pressure.

For convenience, the number of cubic feet per mol may be spoken of as 379.0 cubic feet at 60 degrees Fahrenheit and 1 atmosphere pressure instead of 359.0 cubic feet at 0 degree Centigrade (32 degrees Fahrenheit) and 1 atmosphere pressure.

Dalton's Law

Quoting a text (1): "When gases are mixed together, it has been found that each gas exerts a pressure exactly the same as if that same amount of gas were present in the same space alone, and that the total pressure exerted by the mixture of the gases is exactly equal to the sum of the individual pressures of each of the gases if each were present alone in the same space. The pressure of the individual gas is called its partial pressure, and the above law is known as Dalton's Law of Partial Pressures."

For example: Air contains, roughly, 20.0 per cent oxygen, and 80.0 per cent nitrogen, by volume. Therefore, when air exists at 760.0 millimeters pressure (atmospheric pressure) the partial pressure of the oxygen will be:

$$\frac{20.0}{100.0} \times 760.0 \text{ mm. or } 152 \text{ mm.}$$

The nitgrogen:

$$\frac{80.0}{100.0} \times 760.0 \text{ mm. or } 608 \text{ mm.}$$

Dalton's Law can better be stated in terms of mols, to the effect that the partial pressure of a gas in the mixture of gases must be proportional to the ratio of the number of mols of the gas present to the total number of mols of all the gases present. This ratio is called the mol-fraction (x), and the rule, stated mathematically, then becomes:

$$p = P_g x_g.$$

Where, p = partial pressure,
P_g = total pressure,
x_g = mol fraction of gas in question.

To illustrate: Suppose we have 1,000.0 cubic feet of air at 0 degree Centigrade and 1 atmosphere pressure, composed of 20.0 per cent oxygen and 80.0 per cent nitrogen. Then, of this

1,000 cubic feet, $1{,}000.0 \times .20 = 200$ cubic feet is oxygen, and 800.0 cubic feet is nitrogen,

359.0 cubic feet at 0 degree Centigrade and 1 atmosphere=1 mol, so we have:

$$\frac{200.0}{359.0} = 0.557 \text{ mols of oxygen}$$

and $\frac{800.0}{359.0} = 2.230$ mols of nitrogen.

Then the total number of mols will be: 2.230 plus 0.557 or 2.787 for 1,000.0 cubic feet.

Now, the mole per cent (x) of oxygen will be:

$$\frac{.557}{2.787} \times 100 = 20.0 \text{ per cent}$$

Applying this formula:

$$p = Px,$$

we have $p = (760.0) \times (.20)$,
$p = 152.0$ mm. for oxygen.

Raoult's Law

Where Dalton's law applied to gases, Raoult's law applies to liquids, and instead of speaking of partial pressures alone, we now speak of vapor pressures in addition. This law may be stated as:

$p = P_1 x_1$.

p = partial vapor pressure of any component in a mixture.

P_1 = vapor pressure of the pure component at a given temperature.

x_1 = mol-fraction of the component in the liquid.

To illustrate: Suppose we have a mixture of 50.0 per cent butane and 50.0 per cent pentane, by volume, enclosed in a vessel, with a vapor space above, and at a temperature of 90 degrees Fahrenheit, and we wish to determine the partial vapor pressure exerted by the butane.

The specific gravities (water=1.00) of butane and pentane, at 60 degrees Fahrenheit, are 0.584 and 0.631, respectively. The number of mols of butane would then be:

$$\frac{(50.0)\ (0.584)}{58.0} \text{ or } 0.503 \text{ mols (the 58.0 being the molecular weight of butane).}$$

The number of mols of pentane would be:

$$\frac{(50.0)\ (0.631)}{72.0} \text{ or } 0.438 \text{ (the 72.0 being the molecular weight of pentane).}$$

(Continued on next page)

Cementing the Cutchall No. 2 well in Caddo County, Oklahoma.

Cemented at 2,500 Feet with Oilmax drilled in 48 hours later

THERE was no 6 to 10 days' costly waiting for the cement to harden when this Cutchall No. 2 well in Caddo County, Oklahoma, was cemented. Because Oilmax gave them a job in 48 hours.

The well was cemented at 2,500 feet with Oilmax. And in two days the drilling crew went back on the job. The expense of idle labor and useless equipment was eliminated at a great saving in time and money.

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The total number of mols would then be 0.503 plus 0.438 or 0.941.

Mol per cent butane $\frac{0.503}{0.941} \times 100 =$ 53.5 per cent.

Mol per cent pentane $\frac{0.438}{0.941} \times 100 =$ 46.5 per cent.

Now, the vapor pressure of pure butane at 90 degrees Fahrenheit is 44.5 pounds per square inch absolute, so, substituting in the equation:

$$p = P_1 x_1,$$

We have: P_1 = 44.5 pounds per square inch absolute,
x_1 = of butane as 53.5 per cent.

So: p (for butane) = 44.5 pounds times 0.535 or 23.8 pounds per square inch absolute as the partial vapor pressure of the butane in this mixture.

Application in Absorption

When dealing with theoretical considerations of the phenomena of absorption, Dalton's and Raoult's laws come into considerable prominence. When we think and speak of lean or fat oil and their respective physical properties, such as vapor pressure or concentration, we do so in terms of Raoult's law. When we think of the gasoline content of dry gas as the physical relation of the gasoline fractions to the bulk of the gas in which they exist, or to the lean oil from which they originated, we think of Dalton's law.

This brings us to the conclusion that these two laws must be very definitely associated with respect to what is going on inside an absorber. And, that this relation must be some mathematical one which involves what is in the oil as well as what is in the gas, because both are in such intimate contact.

Equilibrium

If we assume a certain sample of absorption oil to be saturated with gasoline hydrocarbons, and tightly enclosed in a vessel with a vapor space above, if left for some time at a constant temperature, a condition will be brought about which is termed equilibrium. Equilibrium in this sense is understood to mean that the amount of each constituent leaving the saturated oil is balanced by an exactly equal amount of the same constituent going into solution.

Now, if this concept of equilibrium be stated mathematically, we would say that the partial vapor pressure of any component in the liquid equals the partial pressure of the same component in the vapor, or:

$$x_n p_n = y_n P \qquad (1)$$

Where: x_n = mol fraction of n in the liquid,
p_n = vapor pressure of pure n,
y_n = mol fraction of n in the vapor,
P = total absolute pressure of vapor of which n is a part.

In other words, Eq. (1) expresses mathematically, for a condition of equilibrium, the behavior of a gasoline fraction dissolved in absorption oil, (left side of eq.), as compared to the same fraction contained in the gas space above the oil. The gas phase being spoken of in terms of Dalton's law, on the right side of Eq. (1).

Previously, we defined mol fraction as the ratio of the number of mols of a substance in a gas or liquid to the total number of mols of gas or liquid.

So, in Eq. (1)

$$x_n = \frac{L_n}{L} \qquad (2)$$

Where:
L_n = no. of mols of n in liquid
And:
L = total no. of mols of liquid
And:

$$y_n = \frac{V_n}{V} \qquad (3)$$

Where:
V_n = no. of mols of n in the vapor or gas
And:
V = total number of mols of vapor or gas

At this point, it is well to explain that the little term "n" means any particular substance we may want to study. In the following discussion, we will substitute butane for this term n in our practical calculations.

Repeating Eq. (1):

$$x_n p_n = y_n P$$

By substituting the values for x_n and y_n as shown in Eqs. (2) and (3), Eq. (1) now becomes:

$$\frac{L_n p_n}{L} = \frac{V_n P}{V} \qquad (4)$$

Transposing Eq. (4) so as to get the ratio $\frac{L_n}{V_n}$ on the left side, we have

$$\frac{L_n}{V_n} = \frac{LP}{Vp_n} \qquad (5)$$

The expression $\frac{L_n}{V_n}$ means then, the ratio of the number of mols of a substance in solution in absorption oil to the number of mols of the same substance in the gas above it.

Absorption

In an absorption tower, for 100 per cent extraction of any component n, there must be the same quantity of n leaving in the fat oil as enters in the wet gas. This statement, of course, assumes a condition of equilibrium at the bottom of the tower. Hence, for equilibrium $\frac{L_n}{V_n}$ should equal 1.00, or for less than 100 per cent the efficiency of extraction, E_n would equal:

$$\frac{L_n}{V_n} \times 100$$

So, substituting,

E_n for $\frac{L_n}{V_n}$ in Eq. (5),

we now have an equation which denotes the efficiency of absorption for a given fraction:

$$E_n = \frac{LP}{Vp_n} \qquad (6)$$

In order to further our concept of the application of the relations developed so far, let us assign some mathematical values to represent other factors affecting the completeness with which we may reduce the phenomena of absorption to a workable basis for practical application.

Let us assign R_o as equalling the gallons (not mols) of lean oil circulated per 1,000 cubic feet of wet gas. Then, for 1,000 cubic feet of gas, the number of mols of lean oil circulated would be,

$$R_o \times 8.33 \times \frac{G_o}{M_o} \qquad (7)$$

Where:
G_o = Sp. gr. of lean oil (water = 1.00)
And:
m_o = molecular weight of lean oil
And:
8.33 = weight of a gallon of water.

Absorption Factors

Consider now, the phase of actual production of gasoline by the stripping of the fat oil as compared to the total amount of hydrocarbons which have entered the plant system in the fat oil, and let us express this relationship mathematically as:

$$fc = A \qquad (8)$$

Where:
c = gasoline content as determined by dividing actual plant production from storage gauges by the M.C.F. of gas/24 hours. In other words, c = plant extraction in G.P.M.
And:
A = total absorption in gallons per 1,000.0 cubic feet.

By "total absorption," is meant all of the natural gas hydrocarbons absorbed by the lean oil. In other words, when lean oil absorbs gasoline fractions from

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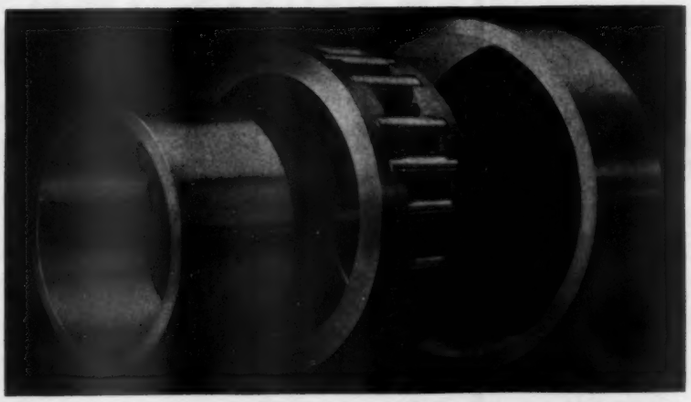

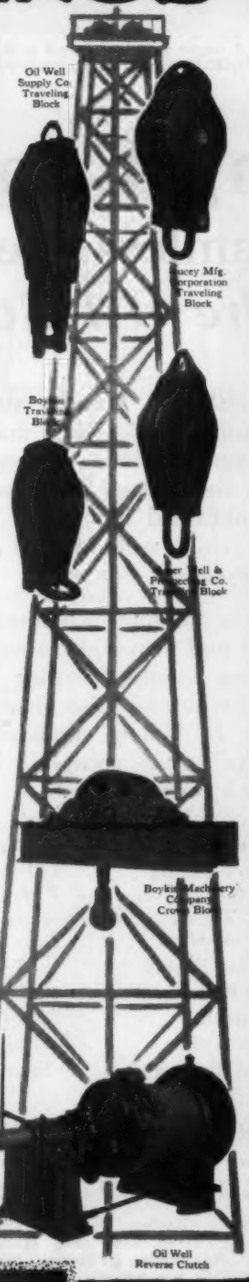
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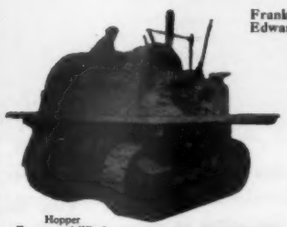
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wet gas, it takes up more than what is actually realized in plant extraction. This increase of the volume of fat oil, expressed in G.P.M. is the factor A. Another way of looking at it is that after the fat oil leaves the tower, the plant production, together with all vapors created in the distillation system such as:

Water trap vapors
Weathering tank vapors
Rectifier overhead
Storage vents, etc.,

are all an integral part of the factor A. In the above case, A might be determined by reducing the vent volumes to a liquid basis; adding to the plant production; prorating this total volume to the plant wet gas intake/24 hours as G.P.M.

And:

f=a factor to be determined by test.

f is a number which, when multiplied by the plant extraction c, will give A. In other terms, for any plant extraction in G.P.M. realized, it is known that more gasoline was brought into the distillation system by the fat oil than what was actually recovered. The factor f tells how much, in that it is a multiplier, which will convert c, the actual plant extraction, expressed in G.P.M., into the total amount of gasoline, in G.P.M., which entered. It is evident that f must always be greater than unity.

A more complete description of the derivation of A, and the use of f will be given under practical applications.

An Illustration

Let us consider an illustration of the equation

$$fc=A$$

A plant extracts 10,000.0 gallons of natural gasoline from 5,000.0 M.C.F. of gas. Plant extraction, or

$$c=\frac{10{,}000.0}{5{,}000.0}=22.00 \text{ G.P.M.}$$

Using the example previously mentioned, suppose that by fundamental analysis, and volume measurement, all of the vent vapors were converted to liquid gallons; added to the plant production and a "total absorption" value of 30,000.0 gals/24 hours were obtained. Prorated to 5,000.0 M.C.F. this would yield a total absorption, by the lean oil, of 6.00 G. P. M. of gas treated. The value of f, then, equals in this case:

$$f2.00=6.00$$
$$f=3.00$$

From this, it is evident that the leaner the gas, in terms of plant extraction, the larger f will become, and conversely, the richer the gas.

The hydrocarbon content of the dry gas should not be confused with the value of A because it is passed directly out of the plant system after leaving the absorber; hence, does not become a part of the vapors generated from the fat oil. However, a hypothetical method of solving for A, using a dry gas fundamental analysis, will be shown later.

Now, converting A into terms of mols, we would have total absorption equaling:

$$A\times 8.33\times\frac{G_a}{m_a} \quad \ldots\ldots\ldots\ldots\ldots (9)$$

Where:

A=total absorption expressed in G.P.M.

And:

8.33=weight of one gallon of water
G_a=specific gravity (water=1.000) of total absorption
m_a=molecular weight of total absorption.

Under this statement, the determination of the specific gravity and molecular weight of A will be shown in more detail under practical applications.

The previous relations can now be combined to show that the total liquid, L, leaving the absorption tower to the still as fat oil is:

$$L=8.33\left(\frac{R_o}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{G_a}{m_a}\right) \quad \ldots\ldots\ldots\ldots (10)$$

Where:

L=total liquid (lean oil plus absorbed gasoline) expressed in mols

and the expression: $\frac{R_o}{1}\frac{G_o}{m_o}$ = mols of lean oil, as shown in Eq. (7) and the expression $\frac{A}{1}\frac{G_a}{m_a}$ = mols of total gasoline absorbed as in Eq. (9)

The algebraic steps through which Eq. (10) was developed, are as follows: From Eq. (7), the mols of lean oil are:

$$R_o \times 8.33 \times \frac{G_o}{m_a}$$

From Eq. (9), the mols of total absorption are:

$$A \times 8.33 \times \frac{G_a}{m_a}$$

The total liquid, L, would then be:

$$L=\frac{R_o}{1}\frac{8.33}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{8.33}{1}\frac{G_a}{m_a}$$

8.33 can be removed from both expressions as a factor, so the resultant form is as presented in Eq. (10).

One mol of any gas = 379.0 cubic feet at 60 degrees Fahrenheit and atmospheric pressure. Hence, 1,000.0 cubic feet of gas (expressed as V in Eq. (3); (4); (5) equals:

$$V=\frac{1{,}000.0}{379.0}=2.64 \text{ mols}$$

Equation (6) gave the efficiency of absorption of a given fraction E_a as:

$$E_a=\frac{LP}{Vp_a}$$

Equation (10) gave the total number of mols of liquid, L, leaving the absorption tower as fat oil:

$$L=8.33\left(\frac{R_o}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{G_a}{m_a}\right)$$

The value of V, we found to be 2.64 mols for any gas.

Efficiency of Absorption

So now we can express the efficiency of absorption of a given constituent E_a in terms of actual quantities which can be determined from readings for tower conditions. This would be:

$$E_a=\frac{8.33}{2.64}\left(\frac{R_o}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{G_a}{m_a}\right)\frac{P}{p_a} \quad \ldots (11)$$

The algebraic steps through which Eq. (11) was developed, are as follows:

As shown previously:

$$E_a=\frac{LP}{Vp_a} \quad \ldots\ldots\ldots\ldots\ldots (6)$$

And:

$$L=8.33\left(\frac{R_o}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{G_a}{m_a}\right) \quad \ldots (10)$$

Substituting the value of L, as given in Eq. (10), for L in Eq. (6), and removing the term V and substituting its constant value of 2.64, we have:

$$E_a=\frac{8.33}{2.64}\left(\frac{R_o}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{G_a}{m_a}\right)\frac{P}{p_a} \quad \ldots (11)$$

This may be simplified slightly to read:

$$E_a=3.153\left(\frac{R_o}{1}\frac{G_o}{m_o}+\frac{A}{1}\frac{G_a}{m_a}\right)\frac{P}{p_a} \quad \ldots (12)$$

If we now take Eq. (12) and solve for oil rate, R_o, we have:

$$R_o=\frac{m_o}{G_o}\left(\frac{E_a p_a}{3.153P}-\frac{AG_a}{m_a}\right) \quad \ldots\ldots (13)$$

The algebraic steps through which Eq. (13) was developed are as follows:

Step (1): $E_a=\frac{3.153P}{P_a}\left(\frac{R_oG_o}{m_o}+\frac{AG_a}{m_a}\right)$

(Continued on next page)

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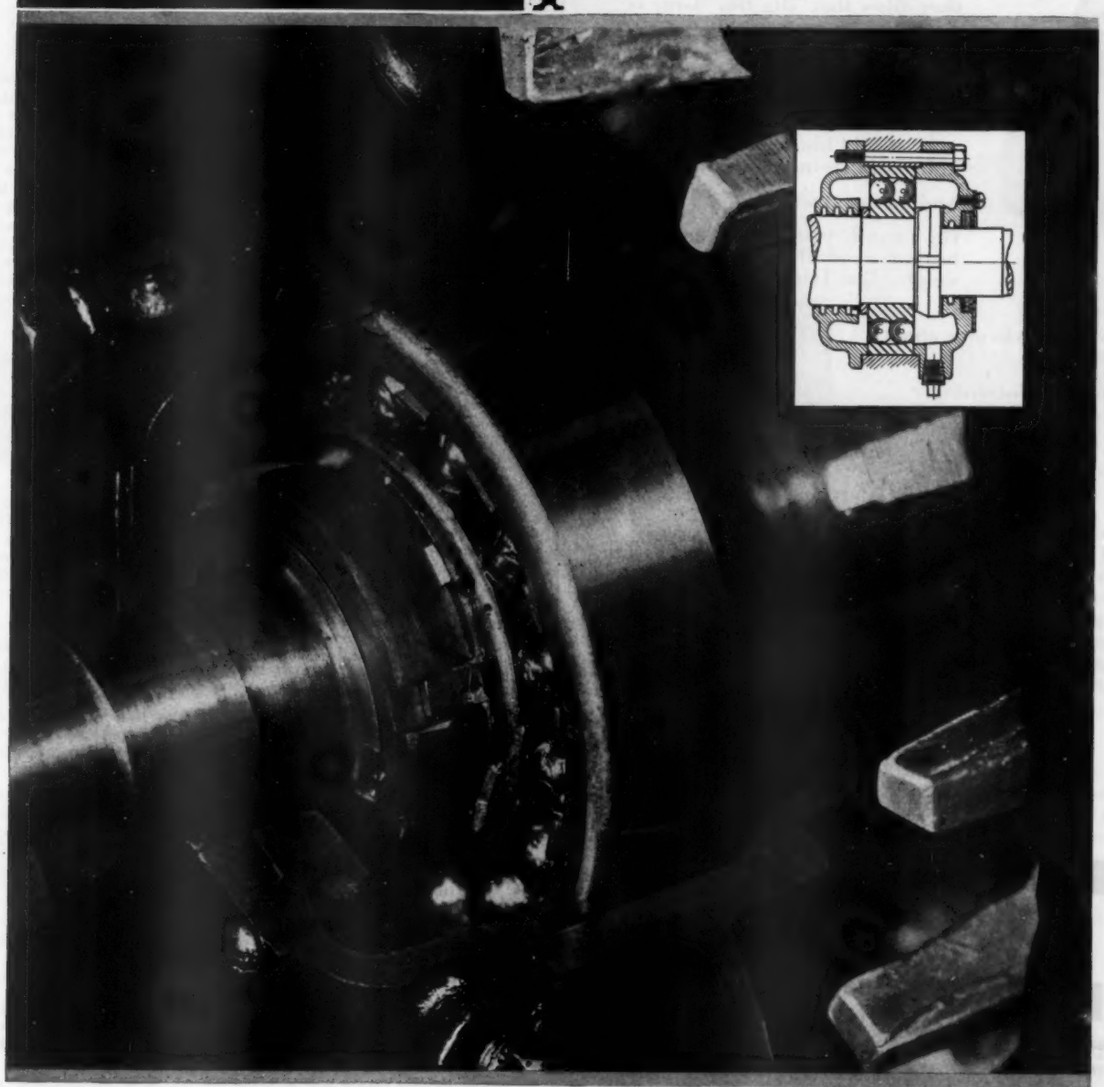

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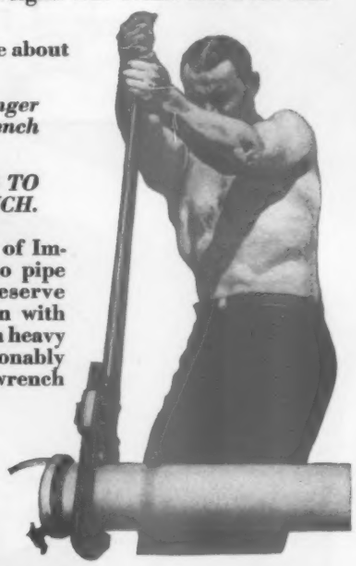

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Step (2): $$E_a = \frac{\frac{R_o G_o}{m_o} + \frac{AG_a}{m_a}}{\frac{p_a}{3.153P}}$$

Step (3): $$\frac{E_a p_a}{3.153P} = \frac{R_o G_o}{m_o} + \frac{AG_a}{m_a}$$

Step (4): $$\frac{R_o G_o}{m_o} = \frac{E_a p_a}{3.153P} - \frac{AG_a}{m_a}$$

Step (5): $$R_o = \frac{\frac{E_a p_a}{3.153P} - \frac{AG_a}{m_a}}{\frac{G_o}{m_o}}$$

Step (6): $$R_o = \left(\frac{E_a p_a}{3.153P} - \frac{AG_a}{m_a}\right)\frac{m_o}{G_o} \quad (13)$$

Equations (12) and (13) then, enable us to solve for absorption effiicency or oil rate.

The values for the molecular weight, m_o, of absorption oil, may be determined by depressing the freezing point of pure benzol. A simple method for accomplishing this is described in detail in the appendix to this paper, and will not be presented at this time.

Top Tray of Absorber

In this discussion, the number of trays are not taken into consideration, or the factors involved in absorber design. This presentation should not be confused with treatments of absorption involving the concentration gradient between top and bottom. Such as presented by Lewis, for example. Nothing is derived for what happens at the top, for this would involve a knowledge of the composition of the residual gas at the bottom of the top tray.

As stated before, the treatment presented here is based on a condition of equilibrium at the bottom of the tower. It is obvious, that under ideal conditions A=o at the top. The degree of equilibrium being determined by the fundamental analysis, of the dry gas for the constituent in question. For instance, if we are concerned with the total absorption of butane, then E_a for butane should be 100 per cent. If E_a comes out less than 100 per cent R_o must be increased, and E_a decreased accordingly.

Applications

In the following applications, the first three examples are practical; the fourth one being theoretical. In problems of this nature assumptions of some form or other are usually necessary. Some object to tactics of this nature in that they feel that the minute an assumption is made, particularly when that assumption consists in estimating a value in an equation composed of factors for which actual figures representing plant conditions can be substituted, that an element of uncertainty is attached to the application of such an equation. This often creates an attitude of prejudice.

Wherever it becomes necessary to "assume" something or other, in the following, a definite reason will be given for such action.

Example 1

This is a 60-inch tower, with 17 bubble cap trays. Operating conditions and fundamental analyses of wet and dry gases are as follows:

Gas

Wet gas volume—9491.0 MCF/24 hrs.
Gas pressure absorber inlet—70.7 pounds/square inch absolute
Temp. gas entering absorber—104.0°F.
Temp. gas leaving absorber—75.0°F.

Oil

Oil rate—217,440.0 gals./24 hours
Oil: gas ratio—22.9 gals./MCF
Temp. oil entering absorber—70.0°F.
Temp. oil leaving absorber—101.0°F.
Sp. gr. lean oil (38.9° A.P.I.)—0.8304 @60°F.
Molecular weight lean oil—170.0
Plant extraction—1.5 G.P.M.

Analyses

	Wet gas % by vol.	Calc. gaso. content	Dry gas % by vol.	Calc. gaso. content
Methane	80.74	....	96.76	....
Ethane	8.58	1.89	7.09	1.56
Propane	4.98	1.36	4.15	1.14
Iso-Butane	1.01	0.33	0.95	0.31
Butane	1.87	0.59	1.95	0.33
Iso-pentane	0.96	0.35	....	....
Pentane	0.38	0.14	....	....
Hexane, plus	1.48	0.68	....	....
Total G.P.M., less methane	....	5.34	....	3.34

Let us see if we can determine what the operating efficiency of this tower is. The only factor, for the efficiency equation E_o, which we must determine is A, or total absorption.

Work done by one company seems to indicate that A, in relation to different oil-gas ratios, figures out as follows

Where:

R_o.	10:1	20:1	30:1	40:1
f :	1.0	1.6	2.2	3.6
A :	1.2	2.0	2.6	3.0

Where plant extraction was 1.2 G.P.M.

This is one way, then, in which we could choose a value for A. For this tower, with an observed oil-gas ratio of 22.9:1, A would be about 2.20. Plant extraction, in this case, being 1.50 G.P.M.

Second Way

A second way would be to assume that the methane has passed through the tower practically unabsorbed. This assumption can be made with reasonable safety due to the preponderance of methane.

Referring to the column for calculated G.P.M. of the wet and dry gases, each one minus its methane G.P.M., we have:

(5.34)—(3.34)=2.00 G.P.M. for A.
(wet) (dry)

Third Way

A third way would be to determine the heat of absorption, and reduce it to a liquid basis. This would be accomplished as follows:

Let: G=Weight of 1,000 cubic feet gas, at 60 degrees Fahrenheit, specific gravity at 60 degrees Fahrenheit. (Air=1.00), in pounds.

u=Specific heat of 0.52 (constant pressure).

Therefore:

Gu=B.T.U./M.C.F./1°F.

And: g=M.C.F. gas/24 hrs.

t_1=Temp. of gas to absorber.

t_2=Temp. of gas from absorber.

Then, the Total B.t.u. transferred to the lean oil by the cooling of the dry gas would be:

(G) (u) (g) (t_1-t_2)=B.t.u./24 hrs.

The weight, in pounds, of 1,000 cubic feet of gas of a specific gravity of 0.600 is approximately (75.0) (0.600) equals 45.0 pounds, where 75.0 equals weight of 1,000 cubic feet dry air at 60 degrees Fahrenheit and 1 atmosphere pressure.

From tower conditions mentioned above, this would be:

(45.0) (0.52) (9,491.0) (104.0 — 75.0) equals 6,440,436.0 B.t.u. transferred to the lean oil/24 hours.

Now the increase in oil temperature may be obtained by assigning:

H, as weight in pounds, of 1 gallon of oil (specific gravity of oil) (water=1.00 times the weight of 1 gallon water).

u, as specific heat of oil taken as 0.5.

o, as gallons of oil circulated/24 hours.

T_1, as temperature of oil into absorber.

T_2, as temperature of oil leaving absorber.

From tower conditions shown above, the heat increase of the absorption oil would then be:

Huo (T_2-T_1)=B.t.u./24 hrs.

from which:

(6.9) (0.5) (217,440.0) (101–70)=23,255,208.0 B.t.u./24 hrs.

Our calculations indicate then:

Absorption oil—B.t.u. from cooling gas +heat of absorption=23,255,208.0 B.t.u./24 hrs.

Inlet gas—B.t.u. from cooling gas=6,440,436.0 B.t.u./24 hrs.

(Continued on next page)

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Heat of absorption = 16,814,772.0 B.t.u./24 hrs.

In changing this heat of absorption to G.P.M. of total absorbed liquid, let us use the heat of vaporization of n-butane per pound. It is 165.0 at the boiling point. Also, let us use the weight, in pounds, of a gallon of butane. This is 4.87 pounds. The molecular weight of butane is 58.0.

Then:

$$\frac{16,814,772}{165.0} = 101,907.0 \text{ lbs. of liquid absorbed (assumed to have the average composition of butane).}$$

Then:

$$\frac{101,907.0}{4.87} = 20,925.0 \text{ gallons of liquid absorbed.}$$

Then:

$$\frac{20,925.0}{9,491.0 \text{ M.C.F.}} = 2.20 \text{ G.P.M. of total absorption.}$$

Fourth Way

A fourth way to calculate A would be from the per cent methane as shown by the wet and dry gas analyses, respectively. We might term this the computation of shrinkage.

The wet gas, in this case, shows 80.70 per cent methane; and the dry gas 86.76 per cent. Assuming the total absorption fraction to have an average composition resembling butane the shrinkage would be:

$$\frac{86.76 - 80.70}{86.76} \times \frac{1,000.0}{31.6}, \text{ or } 2.25 \text{ G.P.M.}$$

Where:

31.6 is cubic feet of butane vapor/gallon.

1,000.0 is cubic feet of gas.

A fifth way to determine factor A would be from the fundamental analysis of the rich oil; carried through the hexane and heavier fractions encountered in wet gas. This analysis, converted to G.P.M. should equal A.

Returning, to the table of tower conditions, let us calculate what the theoretical extraction efficiency, E_n, is for butane.

We will use Equation 12:

$$E_n = 3.153 \left[\frac{R_o}{1} \cdot \frac{G_o}{m_o} + \frac{A}{1} \cdot \frac{G_a}{m_a} \right] \frac{P}{P_n}$$

The substitutions will then be:

$R_o = 22.9$ (observed oil-gas ratio).

$G_o = 0.83$ Specific gravity (water 1.00) of lean oil.

$m_o = 170.0$ molecular weight of lean oil.

$A = 2.25$ using the value obtained from the heat of absorption calculation.

$G_a = 0.584$ specific gravity (water 1.00) of total absorption. That of butane assumed for this.

$m_a = 58.0$ Molecular weight of total absorption. That of butane assumed for this.

$P = 70.7$ Pounds/Square inches absolute absorber pressure.

$p_n = 254.4$ Pounds/square inches absolute V.P. of pure butane at 101 degrees Fahrenheit.

The assumption that the total absorbed fraction A, has properties similar to butane is not believed a serious offense. Actually, in most cases, the total absorbed fraction, if removed completely from the fat oil would have an A.P.I. gravity of 100 degrees, or over.

Butane has an A.P.I. gravity of 110.0 degrees at 60 degrees Fahrenheit. Its liquid gravity of 0.584 at 60 degrees Fahrenheit, and molecular weight of 58.0 would seem safe average values to assume. At any rate, it will be noted that the handling of this factor results in a rather small fraction.

Setting up Eq. 12, we have—

$$E_n = 3.153 \left[\frac{22.9}{1} \cdot \frac{0.83}{170.0} + \frac{2.25}{1} \cdot \frac{0.584}{58.0} \right] \frac{70.7}{54.4}$$

$$E_n = 3.153 \ (0.112 + 0.022) \ 1.3$$

$$E_n = 0.5486 \times 100 = 54.86 \text{ per cent}$$

In other terms, then, with an oil-gas ratio of 22.9:1, this absorber should extract all of the pentane plus, and 54.86 per cent of the butane in the wet gas.

Fundamental Analyses

Referring to the fundamental analyses of the wet and dry gases it will be noted that there is 1.87 per cent butane entering, and 1.05 per cent leaving. In order to determine what per cent of butane was extracted, by actual analysis, we will have to determine what 1.05 per cent butane in the dry gas would be, on the same parts-per-hundred basis, as the wet gas. It is evident that the shrinkage will be close to the ratio of the methane percentages. So we would have:

$$1.05 \times \frac{80.74}{86.76}, \text{ or } 0.976 \text{ per cent}$$

In other words then, 1.05 per cent butane in the dry gas would be 0.976 per cent butane on the parts-per-hundred basis of the wet gas.

The per cent butane absorbed would then be:

$$\frac{1.87 - 0.976}{1.87}, \text{ or } 48.0 \text{ per cent}$$

The "tray efficiency" of this tower might be taken as the ratio of the per cent butane actually extracted, as computed above, to what theoretically should have been extracted by solving Eq. 12, as we have done. In this case the so-called tray efficiency would be:

$$\frac{0.480}{0.549} \times 100, \text{ or } 87.5 \text{ per cent}$$

In other words, where the E_n formula indicated that for an oil-gas ratio of 22.9, 54.86 per cent of the butane should be extracted, the tower removed only 48.0 per cent of it, or 87.5 per cent of 54.86 per cent.

If all of the 54.0 per cent had been removed, it would seem that the internal mechanism of the tower was 100 per cent efficient. In this case, however, we'll have to increase the oil-gas ratio to compensate. If 22.9 is only 87.5 per cent right, then 26.0:1 should extract the 54.0 per cent.

No tests are presented here to substantiate this change.

If it should be desired to remove more than 54.9 per cent butane from the wet gas, the efficiency of extraction desired would be substituted, in decimal form, in Eq. 13; and solved for R_o.

Example II

Here is an example involving two 78-foot towers with 19 perforated trays each.

Operating conditions and fundamental analyses of wet and dry gases follow:

Gas

Wet gas volume	42,800.0 MCF/24 hrs.
Gas pressure absorber inlet	190.0 lbs./sq. in. abs.
Temp. gas entering absorber	95.0°F.
Temp. gas leaving absorber	80.0°F.

Oil

Oil rate	442,840.0 gal./24 hrs.
Oil-gas ration	10.0
Temp. oil entering absorber	60.0°F.
Temp. oil leaving absorber	98.0°F.
Sp. gr. lean oil (40.0°A.P.I.)	0.825
Molecular weight lean oil	165.0
Plant extraction	Not given

Analyses

	Wet gas per cent by vol.	Calc. gaso. content	Dry gas per cent by vol.	Calc. Gaso. content
Methane	90.2	...	96.10	...
Ethane	1.8	0.40	0.70	0.15
Propane	4.3	1.20	2.25	0.62
Iso-butane	0.9	0.29	0.60	0.19
Butane	1.2	0.38	0.35	0.11
Pentanes, plus	1.6	0.66	...	...
Total G.P.M., less butane		2.93		1.07

Determination of Factor A

The table mentioned under Example I would indicate that A is 1.2 G.P.M. However, not knowing the plant extraction in this case, we can't be so sure.

Method 2 gives a value of 1.86 G.P.M. for A.

Method 3, or the heat of absorption

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calculation, gives a figure of 1.20 G.P.M. for A.

Method 4 gives 1.98 G.P.M.

Method 5 was not used.

Using an average of methods 1, 2, 3 and 4, A would equal 1.55.

$$E_s = 3.153 \frac{\left(\frac{10}{1} \frac{.083}{165}\right) + \left(\frac{1.55}{1} \frac{0.584}{58.0}\right) 190.0}{48.0}$$

Where:

48.0 = V.P. pure butane at 98.0°F.

$E_s = 3.253\ (0.050\ 0.016)\ 3.96 \times 100$

$E_s = 82.2$ per cent

The per cent butane extracted, by comparing the analyses of the wet and dry gases, is 72.5 per cent.

The tray efficiency in this case would be:

$$\frac{0.725}{0.822} \times 100, \text{ or } 88.0 \text{ per cent}$$

For the conditions under which this tower was operating, it was actually extracting 88.0 per cent of a possible 82.2 per cent as indicated by the value obtained by solving Eq. 12.

Example III

Here is a 72-foot 17 perforated tray tower which is treating a small amount of rather poor wet gas with a high oil-gas ratio.

Operating conditions and wet and dry analyses follow:

Gas

Wet gas volume	2,384.0 MCF/24 hrs.
Gas pressure absorber inlet	52.7 lbs./sq. in. abs.
Temp. gas entering absorber	81.0°F.
Temp. gas leaving absorber	80.5°F.

Oil

Oil rate	115,200.0 gal./24 hrs.
Oil-gas ratio	48.2
Temp. oil entering absorber	80.0°F.
Temp. oil leaving absorber	84.0°F.
Sp. gr. lean oil (38.1°A.P.I.)	0.83
Molecular weight lean oil	166.0
Plant extraction	1.5 G.P.M.

Analyses

	Wet gas per cent by vol.	Calc. gaso. content	Dry gas per cent by vol.	Calc. Gaso. con-tent
Carbon dioxide	0.22	...	0.29	...
Methane	87.60	...	92.46	...
Ethane	3.92	0.87	2.54	0.56
Propane	4.03	1.10	3.16	0.87
Iso-butane	0.73	0.24	0.29	0.13
Butane	1.75	0.55	0.25	0.08
Iso-pentane	0.73	0.27	...	...
Pentane	0.19	0.07	...	...
Hexanes, plus	0.83	0.79	...	...
Total G.P.M., less methane		3.89		1.64

Factor A for this tower would be:

5.40 by the table described in Example I

2.25 by method No. 2 (Example I)

0.74 by method No. 3 (Example I)

2.00 by method No. 4 (Example I)

The heat of absorption methods gives a negative value for A. For this calculation let us take the value obtained by method No. 4.

Let us see what the efficiency of equation (E_s) gives us.

In this case it would be set up as:

$$E_s = 3.153 \frac{\left(\frac{48.2}{1} \frac{0.83}{166}\right) + \left(\frac{2.0}{1} \frac{0.584}{58.0}\right) 52.7}{41.2}$$

Where:

41.2 lbs./sq. in. abs. is the V.P. of pure butane at 84.0°F.

$E_s = 3.153\ (0.24\ 0.02)\ 1.28$

$E_s = 1.05 \times 100 = 105.0\%$ efficient.

This tower, then, is extracting 105.0 per cent of the butane from the incoming gas.

By a comparison of the actual analysis of wet and dry gas, as shown above, the actual extraction, by test is shown to be only 87.0 per cent.

Suppose we substitute this 87.0 per cent extraction efficiency, obtained by actual test, in Eq. 13 and solve for oil rate (R_o).

We obtain a value of 40:1 as the oil rate necessary to do this. Now, if we substitute the 40:1 oil rate for the original 48.2:1 in Eq. 12 we obtain only 72 per cent as the efficiency. What is wrong?

This example is presented to illustrate a case which is frequently encountered in applying these formulae. It reveals the pertinent fact that they evidently do not take all the conditions affecting absorber efficiency into consideration.

Example IV

Suppose it is desired to construct a plant to treat a wet gas of the following composition:

Methane	90.2 per cent
Ethane	1.8 per cent
Propane	4.3 per cent
Iso-Butane	0.7 per cent
Butane	0.6 per cent
Pentane plus	2.4 per cent

(For brevity, let us think of the "pentane plus" fraction as hexane, and use the physical constants for hexane in our calculations).

An examination of the analysis reveals that if all of the butane (0.6 per cent) and heavier fractions (2.4 per cent) are extracted by the plant, a product will result with the approximate composition:

Butane	16.0 per cent
Pentanes, plus	84.0 per cent

This is an exceptionally good product, and under usual conditions, a portion of the iso-butane would be included in order to increase production and lower the Engler recovery a bit more. The content of the butane and heavier fraction of this gas, if totally extracted, would result in a plant yield of approximately 1.18 G.P.M.

Let us suppose, for economic reasons, that it is desired to extract this 1.18 G.P.M. product.

Using Eq. (13), let us solve for the oil rate necessary.

For n—in this solution we will choose butane and treat of its absorption as though it were alone in the gas, because it is evident that if we remove all of the butane, the pentanes plus will also be removed.

E_s—or the efficiency of extraction of butane will then be 100 per cent or 1.00.

p—or the vapor pressure of pure butane we will choose as 37.0 pounds absolute at 80 degrees Fahrenheit (80 degrees Fahrenheit is chosen as an arbitrary operating temperature for the absorber).

P—or the operating pressure in the absorber, let us choose as 45 pounds absolute (30-pound gauge).

3.153—We have derived as the quotient $\frac{8.33}{2.64}$ or the weight of a gallon of water divided by the number of mols in 1000.0 cubic feet of any gas.

G_o—or the specific gravity (water = 1.00) of the lean oil we will assume as being 0.82 (an oil of 40 degrees A.P.I.).

m_o—or the molecular weight of the lean oil let us take as being 159.0.

G_s—or the specific gravity (water = 1.00) of the total gasoline contained in the fat oil from the absorber, we will assume to be 0.584 (a little over 100 degrees A.P.I.) for reasons already mentioned.

m_s—or the molecular weight of the total gasoline contained in the fat oil from the absorber, we will assume to be 58.0.

In choosing a value for A, we will have to speculate a bit.

From the examples developed from operating data, some may feel that the equation fc = A is unnecessary. However, it comes into considerable use in one of this kind. A user of formulae similar to the R_o and E_s type will, no doubt, have some values for f obtained from plants in operation.

In applications of this nature, A, would have to be estimated. The value of $\frac{A}{1} \frac{G_s}{m_s}$ being so small, no great harm could be done were the estimated value considerably off.

Let us take f as 1.2. Then:

A is (1.2) (1.18), or 1.42 G.P.M.

Filling in Eq. (13)

$$R_o = \frac{\left(\frac{1.0 \times 37.0}{3.153 \times 45.0} \frac{1.42 \times 0.584}{58.0}\right) 159.0}{0.82}$$

$$R_o = (0.26 - .015)\ 194$$

R_o = 47.5 gallons lean oil to be circu-

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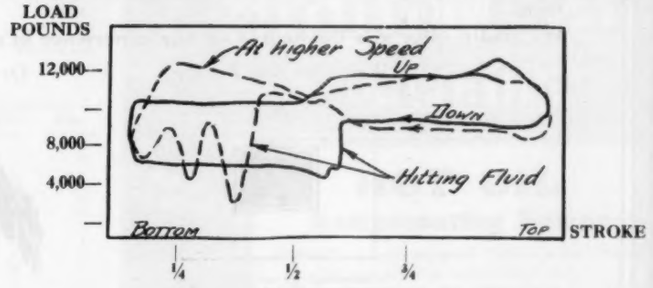

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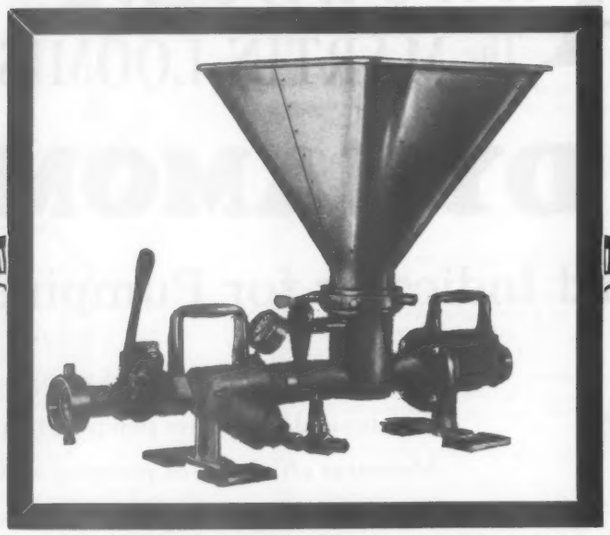

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It is obvious that the gasoline produced would be saturated with fractions lighter than butane, which would necessitate rectification. In fact it would seem advisable, in a case like this to include some lighter fractions in the rectifier feed which would assist in maintaining the rectifier pressure up safely and keep the butane lower in the trays.

Example III is not in keeping with the subject presented here, but illustrates the use of the R_e formula whose development was shown in Part I.

CALIFORNIA OIL FIELD OPERATIONS FOR APRIL, 1929

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for April amounted to 23,295,060 bbls., an average of 776,502 bbls. per day. This is a decrease of 8,167 bbls. per day under March production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 3,351,333 bbls. The total stocks at the end of the month were 155,381,291 bbls. The total stock increase for 1929 up to April 30, was 15,380,397 bbls. Comparative figures as of April 30, 1929, March 31, 1929, and April 30, 1928, are shown in detail in this report.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons)

District—	Bbls per mo.	Daily Average Apr., 1929	Daily Average Mar., 1929	Daily Average Apr., 1928
Kern River	481,746	16,058	15,690	9,732
Mount Poso	1,529	51	32	19
Fruitvale	7,050	235	347	.....
Round Mountain	1,164	38	65	113
McKittrick	146,244	4,875	4,879	5,031
Midway-Sunset	2,106,721	70,224	71,330	73,100
Elk Hills	555,536	18,518	18,462	23,627
Lost Hills-Belridge	133,021	4,434	4,473	4,052
Coalinga	297,592	9,919	10,014	10,791
Kettleman Hills	114,237	3,808	3,442	.....
Wheeler Ridge	22,019	734	731	876
Watsonville	1,825	61	62	57
Santa Maria	144,730	4,824	4,712	6,292
Summerland	3,615	121	120	125
Elwood-Goleta	857,740	28,591	25,819	154
Rincon	97,434	3,248	3,508	1,945
Ventura Avenue	1,660,666	55,356	54,114	51,127
Ventura-Newhall	155,208	5,174	5,455	5,692
Los Angeles-Salt Lake	44,990	1,500	1,404	1,608
Whittier	45,753	1,525	1,624	1,696
Fullerton (Brea Olinda)	395,605	13,187	13,408	16,125
Coyote	343,626	11,454	12,186	13,579
Santa Fe Springs	4,749,940	158,331	170,171	36,897
Montebello	325,758	10,859	10,994	12,513
Richfield	478,996	15,967	16,866	19,458
Huntington Beach	1,342,491	44,748	46,127	54,415
Long Beach	5,703,055	190,102	187,605	153,706
Torrance	435,147	14,505	14,338	18,745
Domingues	322,241	10,741	10,962	12,664
Rosecrans	192,105	6,404	6,843	6,563
Inglewood	742,326	24,744	25,517	29,761
Newport	1,200	40	68	7
Seal Beach	1,329,792	44,660	41,778	38,852
Potrero	20,750	692	732	72
Lawndale	23,208	774	800	.....
Total	23,295,060	776,502	784,669	609,357
March	24,324,729	784,669		
Decrease	1,029,669	8,167		

STOCKS

	Apr. 30, 1929	Mar. 31, 1929	Apr. stock increases	Apr. 30, 1928
Heavy crude, heavier than 20° A.P.I., including all grades of fuel	101,900,145	101,981,165	*81,020	95,398,359
Refinable crude, 20° A.P.I., and lighter	27,766,755	25,172,456	2,594,299	19,685,626
Gasoline	14,113,726	13,310,923	802,813	14,734,542
Naphtha distillates	1,933,402	1,970,157	*36,755	1,778,981
All other stocks	9,667,253	9,595,257	71,996	9,122,118
Total all stocks	155,381,291	152,029,958	3,351,333	140,719,626

*Decrease.

DEVELOPMENT

District—	New rigs up	Active drilling	Completed	Daily initial output	Active producing	Abd. Wells Drillers	Abd. Wells Producers
Kern River	6	4	2	1,150	1,132	1	2
Mount Poso	5	5	5	931	2	1	0
Fruitvale	2	3	3	1,000	3	0	0
Round Mountain	2	5	0	0	2	0	0
McKittrick	0	0	0	0	286	1	0
Midway-Sunset	13	24	5	2,306	2,288	1	14
Elk Hills	0	1	0	0	210	0	1
Lost Hills-Belridge	1	4	4	145	326	1	4
Coalinga	0	0	0	0	769	0	1
Kettleman Hills	11	23	6	0	1	0	0
Wheeler Ridge	0	0	0	0	34	0	0
Watsonville	0	0	0	0	6	0	0
Santa Maria	2	4	1	200	229	0	0
Summerland	3	3	0	0	89	0	0
Elwood-Goleta	2	3	2	6,511	11	2	0
Rincon	1	5	3	575	29	3	0
Ventura Avenue	4	42	5	10,983	161	0	0
Ventura-Newhall	1	26	6	0	505	0	0
Los Angeles-Salt Lake	0	0	0	0	315	0	0
Whittier	0	0	0	0	161	1	0
Fullerton	0	4	1	435	373	1	0
Coyote	0	3	0	0	205	0	0
Santa Fe Springs	43	169	15	50,789	395	1	9
Montebello	2	2	0	0	172	0	0
Richfield	1	8	2	645	271	0	1
Huntington Beach	2	7	2	475	560	0	2
Long Beach	17	18	22	24,218	926	0	7
Torrance	0	0	0	0	598	0	1
Dominguez	1	1	0	0	72	0	0
Rosecrans	1	4	1	80	101	0	0
Inglewood	0	0	1	735	223	0	0
Newport	0	1	0	0	4	0	0
Seal Beach	0	6	1	1,545	139	0	2
Potrero	3	4	0	0	3	1	0
Lawndale	5	22	1	325	3	6	0
Miscellaneous drilling	14	141	1	0	0	11	0
April	142	612	77	103,048	10,604	31	45
March	112	649	81	81,046	10,593	27	34
Increase	30	*37	*4	22,002	11	4	11
Average for year 1928	107	520	59	56,802	10,823	15	25
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17
Average for year 1925	105	417	79	42,247	11,393	28	13
Average for year 1924	103	510	103	42,412	10,903	28	21

*Decrease.

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KENTUCKY-TENNESSEE

(Continued from Page 89)

the Bell Queen farm, District 1 of Lawrence County.

Week's Work

A summary of the week's work in the Kentucky fields show 40 completions, of which 27 are oil producers with an initial production of 1,169 bbls., 12 dry holes and 1 gas well.

County—	Comp.	Oil Wells	Prod.	Dry	Gas
Ohio	23	17	1,113	6	0
Daviess	4	1	6	2	1
Allen	2	2	3	0	0
McLean	1	1	3	0	0
Wayne	4	1	3	3	0
Johnson-Magoffin	2	2	30	0	0
Wolfe	1	1	5	0	0
Lee-Owsley	1	1	5	0	0
Estill	2	1	1	1	0
Total	40	27	1,169	12	1

Ohio County Wells

Ohio County's best completion reported for the week was Dr. Sirman's No. 16 Nancy Farmer in the Friendship Church area in the northern part of the county between Deanfield and Fordville, which showed an initial of 300 bbls. the first 24 hours, the largest producer up to this time found in that pool.

The C. C. C. Oil & Gas Co.'s Nos. 7, 8, 9 and 10 on the J. W. Whittaker farm, north of Bell's Run, are credited with initial production of 30, 25, 30 and 30 bbls., respectively.

The National Deposit Bank Co.'s No. 6 on the Mary Brown in the Deanfield Pool, produced an initial of 50 bbls. after a 110-quart shot. In this well a string of 397 feet of casing was set and the oil pay found at from 411-442 feet.

Handerson, Brand and others' No. 1 on the Dodson farm in the Bartlett Pool, near Taffy, is reported at 50 bbls. initial.

S. H. Russell and others No. 1 on the Henry Greer, in the Kelly Pool, reported with an initial of 25 bbls.

Hupp, Duff and others in the Ellis Bartlett Pool, southwest of Taffy, brought in Nos. 7, 8 and 9 on the Ellis Bartlett 54 acres, with initial production of 50, 150 and 50 bbls., respectively, while No. 6 on the L. L. Trodgen, same pool, produced 50 bbls., initial.

In the Ambrose Pool, the Mecca Oil Co.'s No. 22 on the Cora Wells farm, is a 75-bbl. initial producer.

Three C's Oil & Gas Co's No. 1 F. R. Howard, in the Bells Run area, reported as good for 8 bbls. In the same area, Carpenter and others' second well on the F. R. Howard, had a first-day production of 90 bbls. Same parties' No. 4 Mitchell-Birkhead lease, near Bells Run, produced an initial of 50 bbls, while No. 1 on the Margaret Stinnett, same field, was dry.

Rex-Pyramid Oil Co's No. 7 J. L. Stinnett, in the Bells Run area, produced 50 bbls. initial.

H. B. Cameron and others' No. 5 on the Gil Farmer lease, near Adaburg, was dry at 720 feet.

Leeper Oil Co.'s No. 4, on the Allie Evans farm in the Ward Pool, was dry. H. B. Bastrus has one of the same kind in a test on the L. Howard in the Ward Pool.

Ohio Oil Co. reported to have found a dry hole in No. 3 on the Eula Henning farm in the Whittaker Pool at 810 feet.

C. E. Daugherty and others' test on the Estill Bartlett 52 acres, near Adaburg, was a dry hole at 850 feet.

Daviess County Wells

L. C. Young and others' test on the M. B. Yeiser farm, near the Old Deer farm, not far from Utica, in Daviess County, is reported as good for 6 bbls.

Red Bank Gas Co's test on the Jack Moseley farm, one-half mile east of Moseyville, is reported a duster.

Frank Cox and others' test on the J. S. Cook farm in the Red Hill area and near Friendship Chapel, is rated as good for 250,000 feet of gas per day.

The Missouri-Kansas Pipe Line Co., in its first Kentucky venture got a dry hole in the northeast corner of the Whitley Deer farm on the Hartford Road at 1,450 feet.

Allen County Wells

In the northeastern portion of the Scottsville Field, in Allen County, in the Gainsville area, Pearson & Stein's No. 10 on the I. V. Stovall, pumped 2 bbls. at 354 feet. Snowden-McSweeney Co's No. 36 T. Y. Oliver, same field, pumped 1 bbl at 377 feet.

McLean County Well

The Ohio Oil Co.'s second test on the George McManama farm, 4 miles north of Calhoun, in McLean County, is reported as a 3-bbl. pumper.

Field Pickups

The Missouri-Kansas Pipe Line Co., is starting a test on the Charles Cook farm in the Jones Pool of Daviess County. Thresher and others are drilling on the Edward Crow farm, same pool.

The Petroleum Co. is drilling No. 3 on the Tony Hanford farm in the Brown Pool near Utica, Daviess County.

In Daviess County, in the Utica area, L. C. Young and others are drilling a test on the J. Q. May farm. Eastern Gulf Oil Co. is drilling No. 8 on the M. C. Ruby in the Red Hill Pool, also drilling No. 1 on the National Bank Co.'s farm, same area. Smith, Randolph and others are drilling No. 10 Oscar Wells farm. The Cumberland Petroleum Co.'s No. 2 on the Salmon farm, in the Salmon Pool, is showing for a nice well at last reports.

In Ohio County, H. L. Ogle is offsetting the good well of Dr. Sirman on the Nancy Farmer farm at Friendship Church, which will be his No. 4 on the Payton Royal farm. S. H. Russell and others are drilling Nos. 4 and 5 on the H. C. Greer farm in the Deanfield area. Stewart & Weir are drilling a second test on the Joe Norris farm, same area. W. J. Flesher is drilling on the J. W. Howard, in the Ward Pool. Rex-Pyramid Oil Co. is drilling No. 8 J. L. Stinnett, in the Bells Run Pool. J. C. Ellis is drilling No. 2 on the Mat Saddler, same pool. Carpenter and others are at work on No. 3 F. R. Howard, and No. 5 on the Mitchell-Birkead, same pool. Brown and others are also drilling No. 2 on the T. L. Hickey, same pool.

Leeper & Dahlgren are drilling a test on the Odie Helm farm, north of the Mary J. Elmore and Scott Ambrose farms in the Ambrose Pool of Ohio County. Doug Boling is drilling a well for the Chester Oil Co. on the Tom Hampton farm, between Friendship Church and Deanfield.

EASTERN FIELDS

(Continued from Page 89)

County, the Reishman Oil & Gas Co. is due in the Big Injun sand on the A. C. Kimbrough farm. In McComas district, Cabell County, the West Virginia Gas Corp. is drilling at 2,600 feet on the Albert Hensley farm. In the same district, the same company has a gasser at No. 20 on the Sherman Adkins farm.

West Virginia Tests

In Troy district, Gilmer County, C. M. Bennett and others are drilling on the D. S. Burton farm. In the same district the Mud Lick Oil & Gas Co. has a rig completed on the Clinton Burton farm. In Williams district, Wood County, Carmichael & Britton are drilling on the John Fleming farm. In Parkersburg district, the Parkersburg Sand & Gravel Co. has started to drill on the H. H. Uhl farm. In Walker district, the Oil City Trust Co. has a rig up on the J. R. McCracken farm. In Grant district, Pleasants County, Frank Knox and others are drilling on the D. R. Westbrook farm. On Twelve Pole Creek, Harvey district, Mingo County, the Public Gas Corp. is drilling to the lower pay No. 11 on the Logan Cannel Coal Co.'s property.

Gilmer County

On Holts Run, DeKalb district, Gilmer County, the Philadelphia Gas Co. has a rig completed on the Anna Kelly farm. In Union district, Harrison County, the Hope Natural Gas Co. is due in the sand on the J. W. Summerville farm. In Paw Paw district, Marion County, the Owens Bottle & Machine Co. is due in the Big Injun sand on the Minnie Wilson farm and has a rig up on the Edward Fox farm. In Mannington district, the South Penn Oil Co. is drilling on the C. W. Beaty farm.

In Clay district, Monongalia County, the Carnegie Natural Gas Co. is drilling

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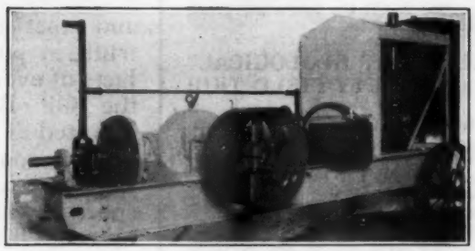

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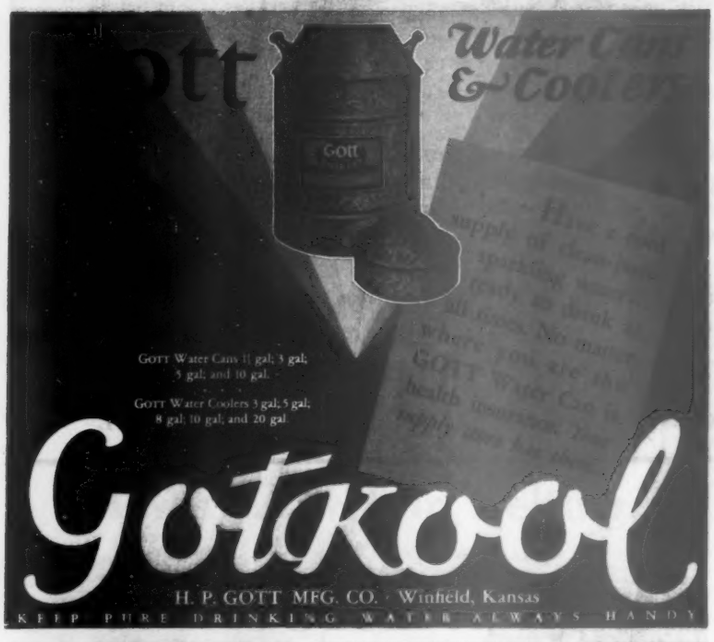

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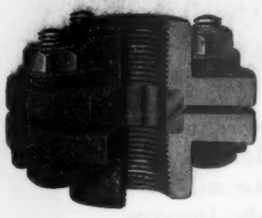

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Starting and Drilling Test Well

In Ten Mile district, Harrison County, John R. Dennison is rigging up on the Allen Varner heirs' farm. In McClellan district, Doddridge County, Godfrey L. Cabot has started to drill on the Edward Tate farm. In New Milton district, Trainer & Travis have made a location on the Robert Nicholson farm. In Coal district, Harrison County, the Washington Gas Co. has drilled to a depth of 2,374 feet on the E. D. Tittro farm and shut down. In McClellan district, Doddridge County, the Starkey Oil Co. is due in the sand on the Jack Flannigan farm. In the same district, J. W. Johnson is due in the Big Injun sand on the Salina C. Craig farm.

On Hartley Run of Sandy Creek, Ravenwood district, Jackson County, the Heck Oil Co. is starting to drill another test on the John Hartley farm. In Center district, Calhoun County, on the Kanawha River, 2½ miles in advance of production, the Gerwig & Kochte Oil & Gas Co. has the rig completed on the A. Hardman farm. In Sherman district, the Hope Natural Gas Co. is drilling on the T. S. Cunningham farm. In the same district, the same company is due in the Big Injun sand on the H. Westfall farm. The same company has a rig up on the Hagan Barr farm. In Center district, Snodgrass Brothers have a rig up on the Williams-Buck farm. In Lee district, Kingsbury & Dollman have the rig completed on the L. L. Lynch farm.

SOUTHWEST PENNSYLVANIA

In Greene Township, Greene County, Jesse L. Garard has completed in the Dunkard sand a test on the Margaret L. Longanecker farm. It is a very light pumper. In Washington Township, the Manufacturers Light & Heat Co.'s No. 12 on the J. W. Closser farm is a gasser in the Gants sand. In the same township, the same company's test on the T. Ross farm is a gasser in the Bayard sand.

In West Strabane Township, Washington County, the Wasco Fuel Co. has completed a light gasser at a second test on the E. K. Lewis farm. In Greene Township, Beaver County, the Laughner Oil & Gas Co.'s test on the Charles McBane farm is a fair gasser. In Buffalo Township, Butler County, the T. W. Phillips Gas & Oil Co. has a gasser on the John Plants farm.

SHREVEPORT GEOLOGICAL SOCIETY FIELD TRIP

SHREVEPORT, La., June 1.—Final arrangements have been completed by the field trip committee of the Shreveport Geological Society for the trip over the southwest Tennessee, northwest Alabama and northeast Mississippi outcrop area June 7, 8 and 9, and anyone figuring on joining the party should get in touch with M. W. Grimm, 312 Ward Building, Shreveport. The trip will be made from Memphis by bus and no private cars will be permitted, so the party may not become scattered as on the previous annual field trips.

Several changes have been made in the route. The first day's trip will be from Memphis to Savannah, spending the night there. Fair weather prevailing, the route will be through Eads, Somerville, Whiteville, Bolivar and Selmer; if rainy, through Jackson and Henderson to Savannah. The second day's trip will be from Savannah to Tueplo, Miss., via Olive Hill, Waynesboro, Muscle Shoals, Russellville, Hamilton and Fulton; or, if rainy, via Shiloh National Park, Corinth, Iuka, Cherokee, Muscle Shoals, etc. The third day's itinerary is from Tupelo to Memphis through Pontotoc, Oxford and Holly Springs. The state geologists of Tennessee, Alabama and Mississippi will make the trip to answer questions and will also give a short discussion at each stop. A considerable number of reservations has already been made, among them

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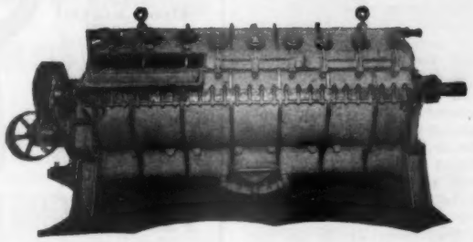

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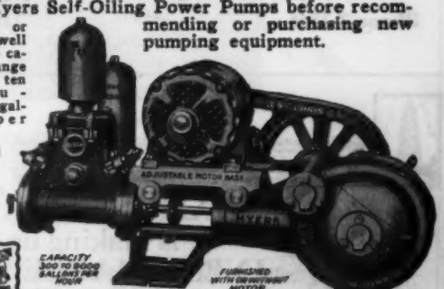

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CENTRAL WEST FIELDS

(Continued from Page 76)

Big Four Oil & Gas Co. drilled a test in the northeast corner of the C. T. Sloan, in the southwest quarter of Section 18. This well struck the gas pay at 1,240 feet and being after oil drilled to 1,285 feet, where salt water was encountered, and then drilled to a total depth of 1,400 feet, where the sand was dry. The well was plugged back to the gas sand and will make a fairly good gas producer. The Washington Syndicate's second test on the Laura Dillon was also drilled to the lower sand but failed to find oil and plugged back to the gas sand at from 1,171 to 1,178 feet where it is also a good gas producer.

Charles A. Taliaferro Jr. is drilling No. 1 on the Lew George farm, Section 29, Washington Township, Pike County, which adjoins the Aaron George farm, where he recently brought in a gas well with a volume of 800,000 feet at from 1,070 to 1,079 feet. Same parties' test 400 feet from the north line and 1,300 feet from the west line of the Della Kime in the southwest quarter of Lot 12, Clay Township, same county, produced an initial of 30 bbls. at from 1,227 to 1,235 feet.

George S. Lackett and others are drilling No. 2 on the Otto Baker, Section 14, Jefferson Township, Adams County. Fred Bays is drilling on the R. M. Bledsoe, Section 26, Gill Township, Sullivan County, and J. L. Bowman, Trustee, is starting No. 3 Elmer E. Williams, Section 5, Fairbanks Township, same county. Siosi Oil Corp. is drilling No. 2 Lennie Thomas, Section 32, Prairie Creek Township, Vigo County.

In Delaware Township, Delaware County, Max Ziegler and others abandoned Nos. 10, 11, 12, 13, 14 and 15 C. Marsh farm, Section 17.

ILLINOIS

The shallowness at which oil is found in St. Clair County, in the western part of Illinois, has attracted much attention and it looks as though great activity will prevail in the county now that weather conditions have improved. Dry holes are found, but they are offset by exceptionally large producers and encourage the work of operators. The newest completion in the field is Morris & Yeager's test 100 feet from the north line and 500 feet from the west line of the Alice Dettenbach in the northeast quarter of Section 28, Sugar Loaf Township, which had an initial of 220 bbls. at from 479 to 555 feet. Same parties are drilling No. 3 on the C. Mansett, in Lot 40, same township. Joe S. Young, Jr., and others' test in the southeast corner of the Adam Hoffstetter in the southeast quarter of Section 22, developed a dry hole at a depth of 701 feet. Arthur Pratt is drilling on the High School plat in Section 28, same township. The Ohio Oil Co. is drilling Nos. 2 and 3 on the Matilda Dyroff, same section.

In the Casey Field, Marshall Township, Clark County, R. G. Holmes and others are drilling on the J. W. Dawson, Section 14. Walter Squires and others are drilling on the J. H. Gitsworth, Section 6, Licking Township, Crawford County.

In the Allendale Field, Wabash Township, Wabash County, the Ridge Farm Oil & Gas Co. is drilling No. 8 W. M. Price, Section 14 and Haven and others are drilling on the Ed Wright, same section.

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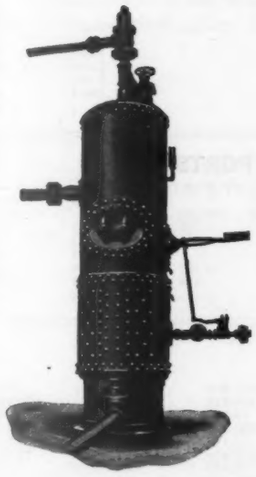

Any condition of oil well operation from pumping or flowing under atmospheric or vacuum system on the gas lines to operation at 500 lbs. pressure, can be carried out with Trumble Equipment.

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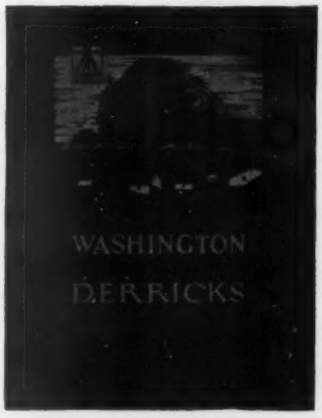

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for March

Runs

Company—	Month bbls.	Dly.av. bbls.
Prairie P. L. Co.	4,619,000	149,000
Gulf P. L. Co.	1,714,368	55,302
Texas P. L. Co.	922,337	29,753
Magnolia P. L. Co.	2,196,587	70,858
Empire P. L. Co.	1,106,721	35,701
Cosden P. L. Co.	757,044	24,421
Sinclair P. L. Co.	3,162,000	102,000
Oklahoma P. L. Co.	3,043,998	98,193
Other lines*	6,262,000	202,000
Total March	23,784,055	767,228
Total February	22,978,583	820,663
Difference	805,472	53,453

Shipments

Prairie P. L. Co.†	5,880,544	189,695
Gulf P. L. Co.	1,681,189	54,232
Texas P. L. Co.	1,116,490	36,016
Magnolia Pet. Co.	2,218,572	71,567
Empire P. L. Co.	1,449,926	46,772
Cosden P. L. Co.	896,505	28,920
Sinclair P. L. Co.*	3,217,416	103,788
Oklahoma P. L. Co.	3,132,387	101,045
Other lines*	6,262,000	202,000
Total March	25,855,029	834,035
Total February	23,350,972	833,964
Difference	2,504,057	71

Stocks

	Bbls.
Prairie O. & G. Co.*	37,682,000
Gulf P. L. and Gypsy Oil Cos.	9,622,285
The Texas Company	8,349,987
Magnolia Pet. Co.	9,887,778
Empire P. L. Co.	4,148,034
Mid-Continent Pet. Corp.	3,439,639
Sinclair Crude Oil Purch. Co.*	20,572,000
Carter Oil Co.	12,450,683
Oklahoma P. L. Co.	3,263,858
Other lines*	11,775,000
Total March	121,191,264
Total February	119,111,780
Difference (see note)	2,079,484

*Estimated. †Prairie P. L. and Sinclair P. L. shipments include Texas crude oil.

Note—Prairie Oil & Gas Co. by purchase from T. B. Slick added 2,600,000 bbls. to its stocks.

Note—Stocks do not include approximately 5,300,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts for wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	181,078.06	220,177.96
S. W. Pa. P. L.	102,780.57	96,471.45
Eureka P. L.	361,950.53	361,294.32
Buckeye P. L. (Macksb'g)	328,651.40	335,779.62
Buckeye P. L. (Cleve.)	11,850.63	12,265.09
Buckeye P. L. (Lima, etc.)	106,736.48	103,296.03
Indiana P. L.	5,695.98	5,130.73
Cum'land P. L.	186,917.24	203,144.51
N. Y. Transit	30,819.36	31,202.58
Tidewater P. L.	216,180.03	233,576.47
Pure Oil	60,961.13	60,020.89
Emery P. L.	64,575.89	65,713.91
Paragon Dev.	14,880.20	18,255.49
Stoll Oil Ref.	6,722.77	6,979.37
Total	1,681,800.27	1,753,308.42
Daily average	54,251.62	58,443.61

Note—Indian Refining Co. also reported other receipts of 228,673.37 bbls. Paragon Refining Co. had other receipts of 185,079.68 bbls. Paragon Development had other receipts of 390.90 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	472,740.05	459,812.50
S. W. Pa. P. L.	324,198.08	363,716.29
Eureka P. L.	227,945.27	248,843.98
Buckeye P. L. (Macksb'g)	178,851.61	191,498.74
Buckeye P. L. (Cleve.)	2,675.09	1,941.40
Buckeye P. L. (Lima, etc.)	1,398,450.19	1,323,167.62
Indiana P. L.	1,426,742.83	1,380,184.34
Cum'land P. L.	202,271.56	184,506.68
Southern P. L.	.....	71,454.97
N. Y. Transit	207,577.62	186,779.49
Northern P. L.	185,794.76	179,598.23
Tidewater P. L.	154,430.49	179,487.31
Pure Oil	68,193.52	57,602.63
Emery P. L.	62,136.95	63,977.39
Paragon Ref.	176,375.05	185,079.68
Paragon Dev.	17,320.04	14,456.13
Total	5,005,703.11	5,092,107.38
Daily average	161,474.29	169,736.91

Indian Refining Co. reported other deliveries of 273,471.85 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of March and April:

	Mar., 1929	Apr., 1929
Nat. Transit	731,188.54	716,361.68
S. W. Pa. P. L.	430,880.16	423,480.13
Eureka P. L.	1,227,449.21	1,305,585.15
Buckeye P. L. (Macksb'g)	496,081.38	517,342.15
Buckeye P. L. (Cleve.)	53,245.56	36,739.70
Buckeye P. L. (Lima, etc.)	2,015,652.51	1,977,236.44
Indiana P. L.	517,499.27	541,456.22
Cum'land P. L.	568,233.96	589,250.22
Southern P. L.	538,367.15	472,810.29
N. Y. Transit	283,675.14	319,023.52
Northern P. L.	377,796.87	384,395.22
Tidewater P. L.	1,369,220.70	1,317,878.72
Pure Oil	8,038.47	11,307.22
Emery P. L.	12,036.26	14,291.05
Paragon Ref.	18,740.25	18,502.92
Indiana Ref.	52,393.15	68,506.50
Paragon Dev.	4,622.34	8,966.70
Tuscarora	296,936.59	255,038.02
Total	9,002,057.51	8,978,171.85
Increase	263,222.55	.....
Decrease	.....	23,885.66

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of March and April showing the gross stocks of the above fields:

	Mar., 1929	Apr., 1929
Pennsylvania	3,315,864.74	3,399,836.77
Lima	578,882.26	557,347.94
Kentucky	742,122.61	781,911.36
Mid-Continent	4,038,082.57	3,956,708.61
Illinois	327,105.33	282,367.17
Total	9,002,057.51	8,978,171.85

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
Jan.	55,630	56,209	52,904	51,749
Feb.	60,394	61,298	57,002	51,833
Mar.	61,644	63,247	57,485	54,252
April	63,019	60,927	56,812	58,444
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
Aug.	61,816	60,870	57,745	.....
Sept.	64,639	60,285	53,487	.....
Oct.	161,132	147,080	58,100	.....
Nov.	67,774	57,275	53,565	.....
Dec.	58,755	52,089	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
Jan.	156,056	141,227	146,465	165,721
Feb.	159,488	138,534	167,368	159,387
Mar.	150,239	133,777	158,883	161,474
April	152,374	140,227	172,935	169,737
May	160,998	144,594	180,559	.....
June	160,257	149,772	188,024	.....
July	160,045	151,850	189,470	.....
Aug.	151,929	188,653	192,853	.....
Sept.	158,915	144,213	194,138	.....
Oct.	161,132	147,036	176,000	.....
Nov.	172,608	150,975	176,898	.....
Dec.	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
Jan.	9,718,008	12,276,710	7,596,564
Feb.	10,119,162	12,180,419	8,738,835
Mar.	10,794,044	12,239,725	9,002,058
April	11,112,295	11,740,125	8,978,172
May	11,359,381	11,602,468	.....
June	11,493,673	11,287,678	.....
July	11,458,128	10,819,331	.....
Aug.	11,989,115	10,236,743	.....
Sept.	12,212,716	9,660,910	.....
Oct.	12,047,661	9,229,709	.....
Nov.	11,939,740	8,366,553	.....
Dec.	12,340,297	7,539,555	.....

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
June	3,153.08	2,779.02	17,922.58
July	2,902.50	3,628.02	17,197.06
August	2,874.11	2,350.13	17,721.04
September	2,820.31	5,255.42	15,285.93
October	1,289.93	538.89	17,551.93
November	2,663.53	788.47	19,426.99
December	3,053.60	3,167.53	19,426.99
1929—			
January	2,099.90	.....	19,313.06
February	2,469.47	6,873.20	17,009.23
March	3,330.82	3,595.01	16,745.04

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, May 1	2,377,793.51
Runs from wells	483,775.24
Other receipts	496,648.12
Regular deliveries	600,225.37
Other deliveries	383,669.25

The amount of Illinois oil run by the Tidewater Pipe Line Co. in April was 26,599.03 bbls. Deliveries were 54,072.59 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and delivdries as follows:

1928—	Runs	Deliveries
May	632,968.64	522,980.51
June	608,552.49	625,087.33
July	612,286.49	585,678.37
August	639,074.85	671,864.02
September	570,307.91	737,293.50
October	626,147.64	626,290.40
November	576,332.88	702,589.93
December	584,663.00	491,517.26
1929—		
January	570,727.38	545,084.66
February	517,330.17	503,387.70
March	728,319.67	536,049.60
April	515,374.27	654,297.96

Tide Water Pipe Line Co., Ltd., also delivered in April 158,893.01 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
October	17,323	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....	35,613
November	21,333	5,200	25,400	18,200	7,100	77,233	.....	.....	.....	.....	1,000	78,233
December	4,965	2,968	24,678	18,806	3,064	54,484	.....	.....	.....	.....	2,419	56,903
January	15,838	.....	16,676	11,838	7,938	52,290	.....	.....	.....	.....	5,161	57,451
February	14,214	.....	38,750	17,250	11,607	81,821	.....	.....	.....	.....	3,750	85,571
March	19,903	968	31,258	18,581	7,355	78,065	.....	.....	.....	.....	.....	78,065

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
October	20,161	16,839	128,452	27,710	7,098	200,258	.....	32,226	3,065	1,612	36,903	237,161
November	18,400	16,033	133,700	20,267	8,433	206,833	1,333	37,167	4,633	.....	43,133	249,966
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	2,355	.....	40,387	263,677
January	11,936	8,903	130,065	34,871	15,709	201,484	.....	34,808	4,098	1,287	40,193	241,677
February	13,750	15,071	135,179	33,750	17,893	214,643	.....	34,357	821	143	35,321	249,964
March	18,548	26,064	145,516	39,163	28,163	257,452	.....	42,581	2,322	.....	44,903	302,355

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons)

1928—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
April:	Month	18,230,729	19,096,920	21,876,913	3,412,260	2,472,600	1,912,187	2,370,510	3,331,000	73,653,419
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,786
May:	Month	19,321,866	19,443,355	21,220,046	3,567,809	2,843,847	1,926,026	2,525,043	3,619,000	74,276,992
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,396,032
June:	Month	19,164,344	18,482,931	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,014
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,134
July:	Month	19,754,455	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	74,800,746
	Daily average	637,241	606,745	711,475	102,308	90,069	72,131	80,406	112,484	2,412,927
August:	Month	19,444,339	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	76,590,783
	Daily average	627,255	672,284	720,448	101,518	87,477	64,170	82,640	114,709	2,470,670
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,422,430	3,229,000	75,995,273
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,279
October:	Month	19,430,932	23,431,071	22,176,253	3,058,460	2,653,484	1,836,221	2,571,823	3,612,000	78,769,903
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,964
November:	Month	19,907,536	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,343,000	75,770,663
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,433	2,525,689
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	79,407,379
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,528
1929—										
January:	Month	23,385,939	22,417,030	23,412,192	3,361,641	2,453,526	1,807,887	2,076,070	3,379,000	81,793,285
	Daily average	754,385	723,130	755,232	92,311	79,146	58,318	66,970	109,000	2,638,492
February:	Month	22,300,707	20,448,764	20,816,209	2,557,968	2,154,194	1,569,930	1,965,656	3,122,000	74,935,428
	Daily average	796,454	730,313	743,434	91,356	76,936	56,068	70,202	111,500	2,676,262
March:	Month	24,324,729	20,838,362	24,358,593	2,951,076	2,241,734	1,756,153	2,196,822	3,503,000	82,169,369
	Daily average	784,669	672,202	784,669	95,196	72,314	56,650	70,833	113,000	2,650,623
Total 12 months		245,303,961	250,769,637	262,659,778	36,742,320	30,935,945	22,589,160	28,295,460	41,063,000	918,870,361

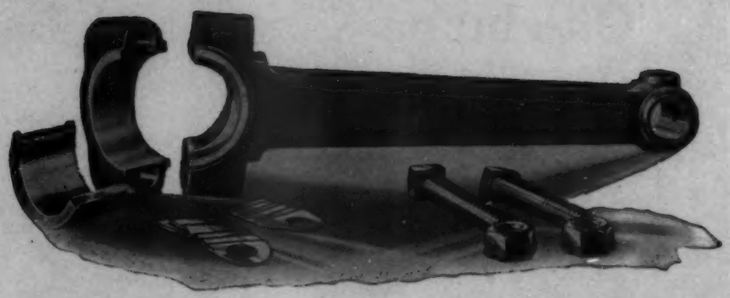
4 FEATURES OF GASO PUMP, FIG. 1508

1 Main and Pinion Shaft bearings are Timken Tapered Roller Bearings.

2 Main and Pinion Gears of continuous tooth Herringbone construction.

3 H-column Connecting Rod, with babbitt-lined, removable bronze shell at crank end.

4 Pump is fully enclosed, dust-proof, and entirely self lubricated.



An Enduring Connecting Rod . . . . . with Removable Bushing

Our Figure 1508 Pump has a connecting rod of best grade open hearth steel, of "H" construction for utmost strength, correctly balanced for smooth running.

The crosshead end is equipped with bronze bushing. The crank end has a removable, babbitt lined bronze shell, which is easily and quickly renewed in the field.

GASO PUMP & BURNER MFG. CO.
Tulsa, Okla.

210 Petroleum Bldg., Fort Worth, Texas

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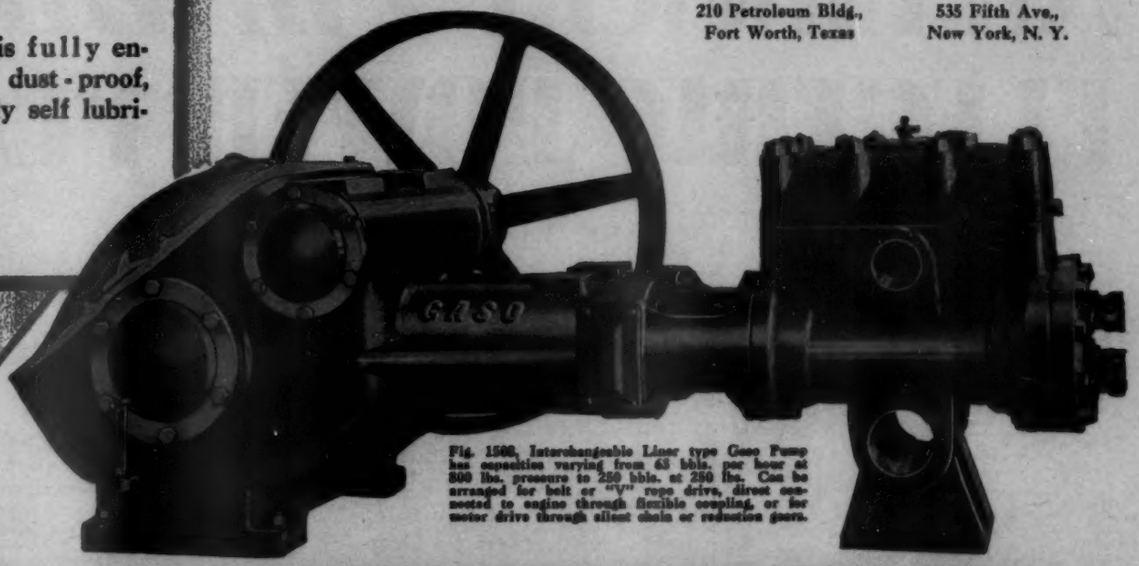
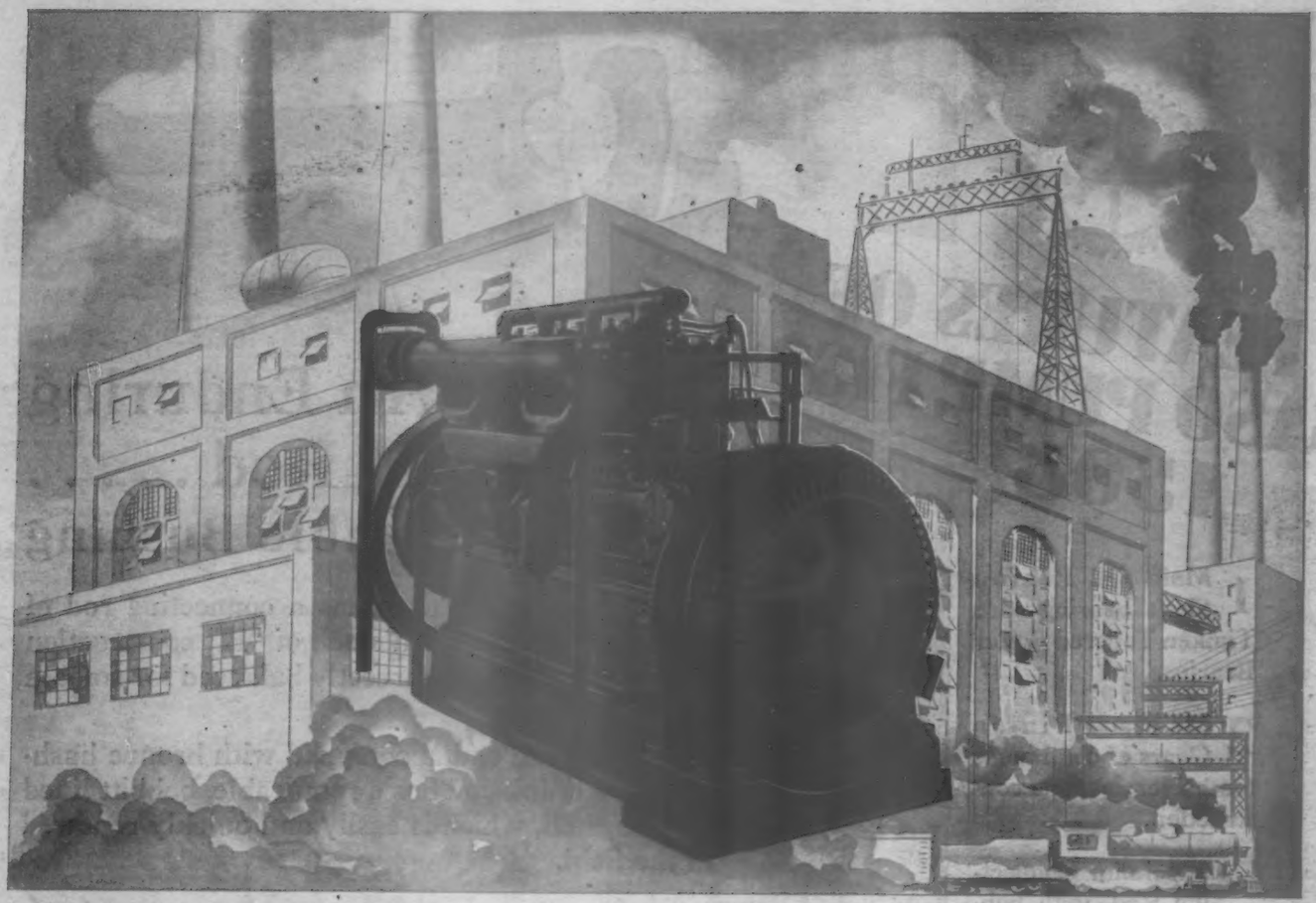


Fig. 1508, Interchangeable Liner type Gaso Pump has capacities varying from 63 bbls. per hour at 800 lbs. pressure to 250 bbls. at 250 lbs. Can be arranged for belt or "V" rope drive, direct connected to engine through flexible coupling, or for motor drive through silent chain or reduction gears.

GASO PUMPS

for every oil industry need



An Efficient *Portable* ELECTRIC POWER PLANT

The CLARK Generator Unit —easily transported anywhere—furnishes dependable and economical electric power for operations out of reach of regular power lines.

Unit consists of CLARK Engine, with 4 vertical cylinders, using gas or gasoline, and developing 90 H. P. at 400 R. P. M., direct connected to Generator, 75 k. v. a.—480 v.—3 phase—60 cycle, 400 R. P. M.

Sturdy construction, complete enclosure and automatic lubrication insure long service.

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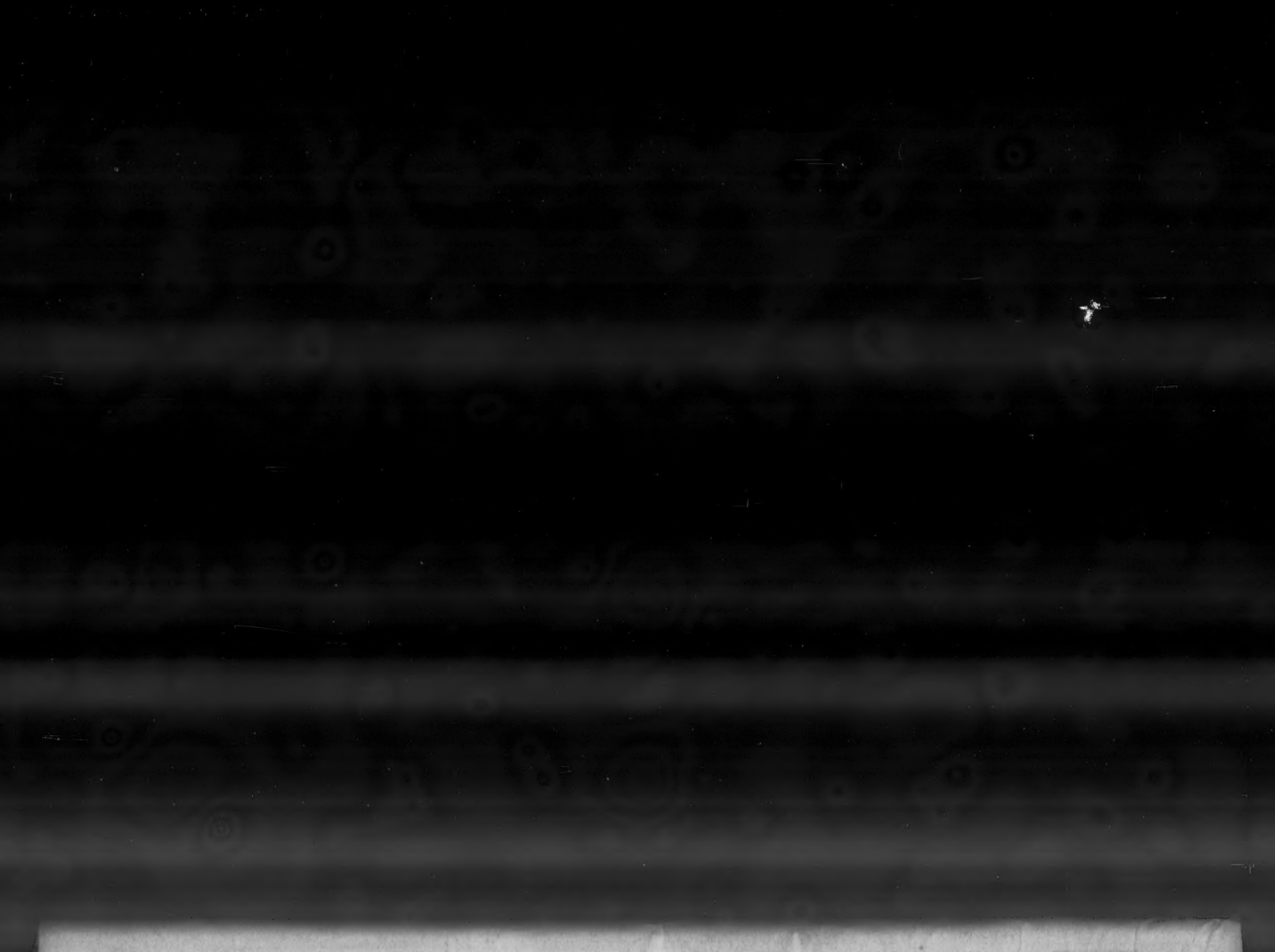
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